MIKITINA, T.A., kand.med.nauk

Plantar and palmar lesions clinically related to epidermomycoses. Vest.derm.i ven. 34 no.12:11-16 '60. (MIRA 14:1)

1. Iz Leningradskogo nauchno-issledovatel'skogo instituta antibiotikov (zav. klinikoy - kand.med.nauk V.Ya. Nekachalov, dir. - kand.biologicheskikh nauk A.V. Loginov).
(DERMATOMYCOSIS) (HAND—DISEASES) (FOOT—DISEASES)

UMNOVA, I.I.; NIKITINA, T.A.

Incidence of deep suppurative trichophytosis. Vest. derm. i ven. 39 no.4:67-69 Ap '65. (MIRA 19:2)

1. Submitted Feb. 25, 1964.

NIKITINA, T.D.

NIKITINA, T.D.; GEYBER, N.M.

Calculating the cost of petroleum products. Neftianik 2 no.8:27-28 Ag '57. (MIRA 10:10)

1.Nachal'nik planovogo otdela Novo-Ufimskogo neftepererabatyvayushgo zavoda (for Nikitin). 2.Starshiy inzhener planovogo otdela Novo-Ufimskogo neftepererabatyvayushchego zavoda (for Geyber).
(Petroleum products--Costs)

NIKITINA, T.D. (Novosibirsk, ul. Sverdlova, 41a, kv. 59)

Embryogenesis of the fasciae of the mediastinum. Arkh. anat. gist. embr. 39 no. 10:50-57 O '60. (MIRA 14:2)

1. Kafedra operativnoy khirurgii s topograficheskoy anatomiyey (zav. - prof. A.N. Glinskiy) Novosibirskogo meditsinskogo instituta.

(MEDIASTINUM) (FASCIAE (ANATOMY))

NIKITINA, T.F.; MYSHKINA, L.P.

Root knot nematodes and measures for combating them. Trudy probl. i tem.soveshch. no.3:118-123 '54. (MLRA 8:5)

1. Gor'kovskiy sel'skokhozyaystvennyy institut.
(Root knot)

NIKITINA, T F

[illegible]

[illegible] : [illegible], 1957, [illegible]

[illegible] : [illegible]
[illegible] : [illegible]
[illegible] : [illegible] (Lepidoptera [illegible]) [illegible] Control

[illegible] : [illegible], 1957, [illegible]

Abstract : [illegible] Obl [illegible] July [illegible] [illegible]

[illegible] : 1/2

42

NIKITINA, T.F., inzh.

Ways of eliminating the weaving-over and drag-in of weft in the manufacture of Zephyr fabrics. Tekst. prom. 23 no.7: 49-50 Jl '63. (MIRA 16:8)

1. Nauchno-issledovatel'skaya laboratoriya Glukhovskogo khlopchatobumazhnogo kombinata imeni Lenina.
(Looms)

L 10396-66 EWT(1)/EEC(k)-2/EPF(n)-2/EWA(h) WW/AT

ACC NR: AP5026900 SOURCE CODE: UR/0109/65/010/010/1809/1813

44,55 44,55 44,55 44,55

AUTHOR: Basov, N. G.; Strakhovskiy, G. M.; Nikitin, A. I.; Nikitina, T. F.; Tatarenkov, V. M.; Uspenskiy, A. V.

44,55 44,55

ORG: Institute of Physics, AN SSSR (Fizicheskiy institut AN SSSR)

44,55

TITLE: Quantum generator with hydrogen-atom beam

25

SOURCE: Radiotekhnika i elektronika, v. 10, no. 10, 1965, 1809-1813

TOPIC TAGS: quantum generator, atomic hydrogen ~~quantum generator~~

21,44,55

ABSTRACT: Construction of two atomic-hydrogen quantum generators (QG) designed after H. M. Goldenberg, D. Kleppner, and N. F. Ramsay (Phys. Rev. Let., 1960, 5, 8, 361; and Phys. Rev., 1962, 126, 2, 603) is reported. Atomic hydrogen from gas-discharge source 1 passes (10^{11} —10^{12} particles per sec) through diaphragm 2 and is focused by magnet 3. The sectionalized vacuum

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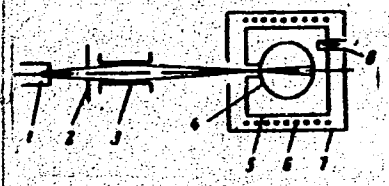
2

L 10396-66

ACC NR: AP5026900

27



system uses ordinary N5SM pumps in the first sections and an ion-sorption titanium pump in the last section to achieve a vacuum of 10^{-7} torr. Other parts of QG are: 4 - quartz teflon-lined bulb; 5 - resonator; 6 - solenoid for building an axial magnetic field; 7 - magnetic shield ; 8 - coupling loop. A 0.01—0.02-sec pumping pulse, at a frequency corresponding to λ = 21 cm transition, produced a post-radiation for 0.2—0.5 sec. The total estimated and measured relaxation constant was about 2 per sec, which corresponds to a lifetime of 0.5 sec. Data on frequency stability and shift is also given. "The authors wish to thank A. M. Prokhorov and A. N. Orayevskiy for discussing the results and valuable advice; and L. P. Yelkina, G. A. Yelkin, A. N. Ponomarev, A. A. Ul'yanov, L. M. Zak, N. A. Begun, and O. S. Lysogorov for their assistance in the project." Orig. art. has: 5 figures and 6 formulas.

SUB CODE: 20 / SUBM DATE: 10Jul64 / ORIG REF: 000 / OTH REF: 004

jw

Card 2/2

L 23392-66 EWA(h)/EEC(k)-2/EWT(l)/EWT(m)/EWP(k)/FBD/T/EWP(t) IJP(c) WG/JD

ACC NR: AT6009315 SOURCE CODE: UR/2504/65/031/000/0139/0177

AUTHORS: Basov, N. G.; Strakhovskiy, G. M.; Nikitin, A. I.; Nikitina, T. F.; Tatarenkov, V. M.; Uspenskiy, A. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Problems of construction and investigation of the operation of a hydrogen-atom-beam maser

SOURCE: AN SSSR. Fizicheskiy institut. Trudy, v. 31, 1965. Kvantovaya radiofizika (Quantum radio physics), 139-177

TOPIC TAGS: maser theory, gaseous state maser, hydrogen, maser, quantum generator, excited state, stimulated emission

ABSTRACT: The authors review the hitherto published work on the theory and construction of hydrogen-beam masers and discuss the construction, choice of optimal parameters, and preliminary operating results of a maser using the transition ($F = 1, m_F = 0$) -- ($F = 0$,

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L 23392-66

ACC NR: AT6009315

$m_F = 0$) at 1420.405 Mcs. Two installations of different construction are described. The operation of the maser in the underexcited mode is investigated. A procedure for determining the lifetimes of the excited atoms in the storage bulb are described. The apparatus was operated with an axial resonator magnetic field of 100 -- 300 mOe. The dependence of the amplitude and frequency of generation on the various parameters was investigated and it was found that the greatest contribution to the maser instability is due to the instability of the supplementary magnetic field and the detuning of the resonator as a result of thermal expansion. Methods of overcoming these difficulties are discussed. The section headings are: Introduction. I. Construction and adjustment of hydrogen-beam maser. 1. Operating principle of hydrogen-beam maser. 2. Vacuum system. 3. Atomic-beam sources. 4. State sorting and atomic-beam focusing. 5. Detection of hydrogen-atom beam. Methods of adjusting the apparatus. 6. Bulb for accumulation of atomic hydrogen. 7. Cavity resonator. 8. Radiation receiver for 1420 Mcs frequency. II. Investigation of operation of hydrogen-beam maser (preliminary results). 1. Investigation of stimulated emission of atomic hydrogen at 1420.4 Mcs.

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L 23392-66

ACC NR: AT6009315 9

2. Characteristics of hydrogen-beam maser. Conclusions. The authors thank A. M. Prokhorov and A. N. Oraevskiy for a discussion of the results and valuable advice, and L. P. Yelkina, G. A. Yelkin, A. N. Ponomarev, A. A. Ul'yanov, L. M. Zak, N. A. Begun, and O. S. Lysogorov for help with the work. Orig. art. has: 28 figures and 69 formulas.

SUB CODE: 20/ ORIG REF: 021/ OTH REF: 034 / SUBM DATE: none

Card 3/3 10

L 28449-66 FBD/EWT(l)/EWT(m)/EEC(k)-2/T/EWP(t)/ETI/EWP(k) IJP(c) WG/JD

ACC NR: AP6018703 SOURCE CODE: UR/0386/66/003/011/0441/0443

AUTHOR: Basov, N. G.; Zakharov, Yu. P.; Nikitina, T. F.; Popov, Yu. M.; Strakhovskiy, G. M.; Tatarenkov, V. M.; Khvoshchev, A. N.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Gallium arsenide laser operating at room temperature

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pisma v redaktsiyu. Prilozheniye, v. 3, no. 11, 1966, 441-443

TOPIC TAGS: gallium arsenide, semiconductor laser, pn junction, junction diode, laser radiation spectrum

ABSTRACT: The authors investigated the performance of semiconductor lasers based on diffusion p-n junctions operating at 300K. The diodes were excited either with a pulse generator (current up to 4000 amp, pulse duration 20 nsec) or with a generator with discharge capacitor and mechanical discharge with current up to 1500 amp and pulse duration 30-60 nsec. The diode emission had at low currents a broad spectrum that narrowed down gradually from 300 to 110 Å with increasing current. At a threshold current density that varied from diode to diode (10^3 - 5 x 10^3 amp/cm^2), a single generation line was produced at ~9000 Å, which is of longer wavelength than the maximum of the spontaneous emission spectrum. With increase in current, additional lines appear in the spectrum, corresponding to different resonator modes and the

Card 1/2

L 28449-66

ACC NR: AP6018703 O

generation wavelength increases. Measurement of the diode emission directivity pattern yielded for the width of the luminescent region a value of 4 μ. The directivity pattern in a plane parallel to the p-n junction shows a pronounced multilobe interference character, with average half-width 8°. Orig. art. has: 2 figures and 1 formula. [02]

SUB CODE: 20/ SUBM DATE: 02Apr66/ ORIG REF: 002/ OTH REF: 002/ ATD PRESS: 5006

Card 2/2 IC

ACC NR: AP6032018 SOURCE CODE: UR/0386/66/004/006/0208/0210

AUTHOR: Kogan, L. M.; Libov, L. D.; Nasledov, D. N.; Nikitina, T. F; Orayevskiy, I. N.; Strakhovskiy, G. M.; Sungurova, O. A.; Tsarenkov, B. V.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Continuous coherent radiation of epitaxial diodes of GaAs at 77K

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniya, v. 4, no. 6, 1966, 208-210

TOPIC TAGS: gallium arsenide, epitaxial growing, pn junction, semiconductor laser, emission spectrum, recombination emission

ABSTRACT: The authors report continuous generation from a GaAs semiconductor laser with epitaxial pn junction operating with the medium at 77K. The junction was produced by liquid epitaxy by the method of H. Nelson (RCA Rev. v. 24, 603, 1963). The epitaxial layer was doped with tellurium to a density ~5 x 10^{18} cm^{-3}. A Fabry-Perot type resonator was produced by cleavage along the (110) plane. Emission values of the spectra of the same diode, obtained at different values of the exciting current, in pulsed or continuous operation, show that the maximum of the recombination spectrum shifts toward shoreter wavelengths with increasing current; this shift is due to the "dispersal" of the Fermi quasilevels with increasing pump energy, and also to the shift to the long-wave section of the spectrum in the continuous mode, relative to

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ACC NR: AP6032018

the spectrum in the pulsed mode, connected with the constant heating of the active region in the continuous case. This difference between the spectra in the two modes is larger for small currents and decreases on approaching the threshold current. The latter effect is connected with the presence of deep electronic levels with very low state density. Coherent radiation in the continuous mode occurs at a current of 250 ma (612 a/cm^2). The narrow spectral line appearing in this case corresponds most probably to the non-axial "annular" type of resonator oscillations. At 410 ma (1020 a/cm^2), a new system of coherent lines appears, which can be interpreted as corresponding to axial modes of the cavity. The total emission power of the diode for which the spectra are presented is 5 mW at the appearance of the first coherent line and 70 mW at a current 1.5 a. Orig. art. has: 1 figure. [02]

SUB CODE: 20/ SUBM DATE: 13Jun66/ OTH REF: 002/ ATD PRESS: 5084

Card 2/2

L 44602-66 EWT(1)/EWT(m)/EEC(k)-2/T/EWP(k)/EWP(t)/ETI IJP(c) JC/JD/JG

ACC NR: AP6030977 SOURCE CODE: UR/0181/66/008/009/2789/2791

AUTHOR: Kogan, L. M.; Libov, L. D.; Nasledov, D. N.; Nikitina, T. F.; Strakhovskiy, G. M.; Tsarenkov, B. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR); Physics Institute im. P. N. Lebedev AN SSSR, Moscow (Fizicheskiy institut AN SSSR)

TITLE: Certain properties of GaAs laser diodes with an epitaxial p-n junction at room temperature

SOURCE: Fizika tverdogo tela, v. 8, no. 9, 1966, 2789-2791

TOPIC TAGS: solid state laser, semiconductor laser, gallium arsenide laser, epitaxial diode, infrared laser, PN JUNCTION, EPITAXIAL GROWING

ABSTRACT: In an experimental investigation of epitaxial p-n GaAs junctions, tellurium-doped n-type and zinc-doped p-type GaAs was used. The electron concentration in the n-type GaAs was 5.5×10^{17}—2.4×10^{18} cm^{-3}; the hole concentration in the p-type GaAs was 1.5×10^{18}—2.4×10^{19} cm^{-3}. The specimens were oriented along the (100) plane and the epitaxial p-n junction was prepared from the liquid phase by a method described elsewhere (H. Nelson, RCA Rev., 24, 603, 1963). The dislocation density near the p-n junction in the epitaxial layers did not exceed that in the wafer and was 10^4 cm^{-2}. The Fabry-Perot cavity was formed by the cleaved (110) surfaces, and the electrical

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L 44602-66
ACC NR: AP6030977

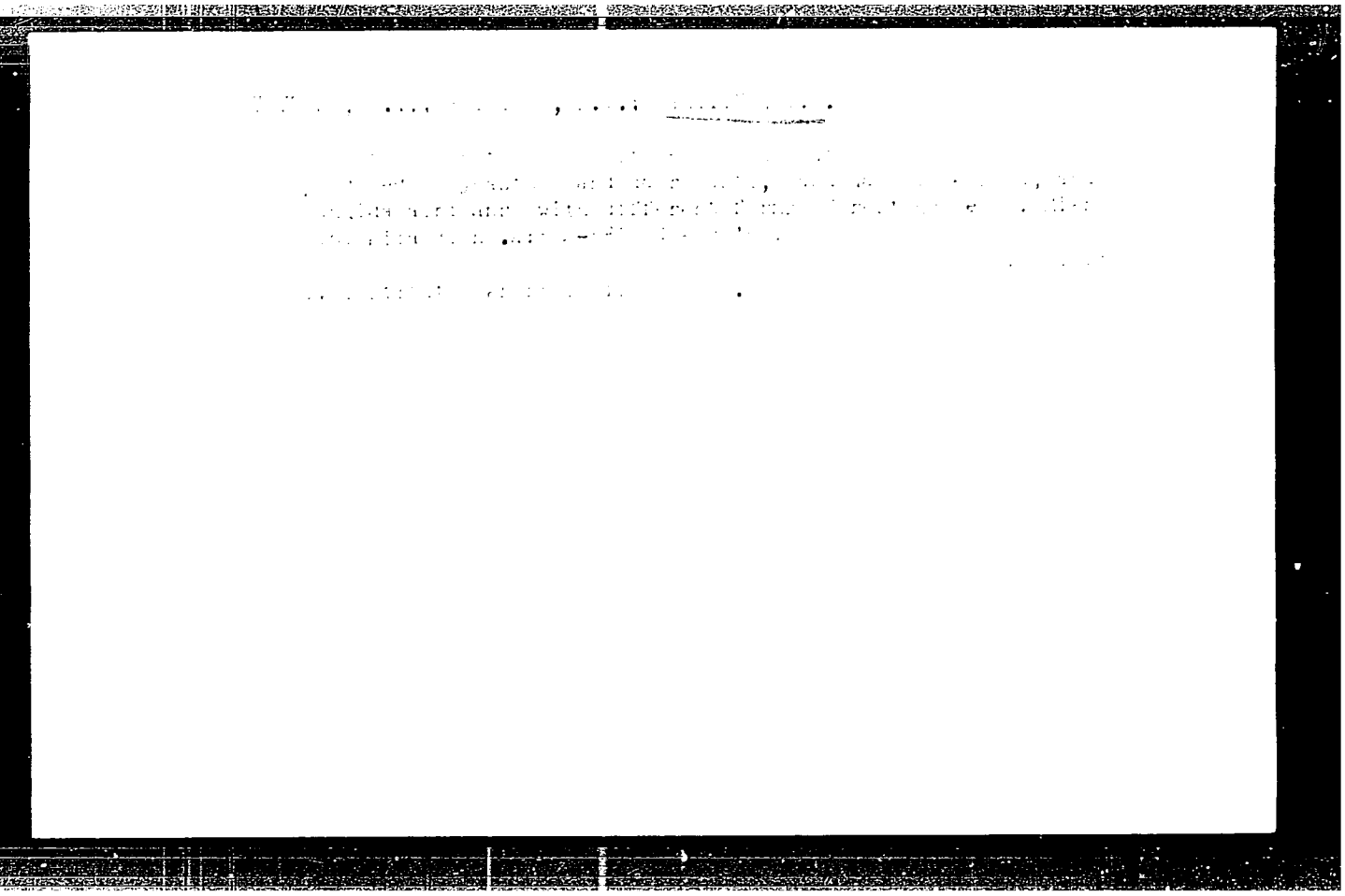
contacts were made of indium. The residual resistance of a diode with an area of 10^{-3} cm^2 was less than 0.1 ohm. Laser action at room temperature was achieved with 30-nanosec current pulses. An FEU-22 photomultiplier recorded the optical output. The threshold currents were determined from the dependence of intensity on current. The p-type GaAs specimens with hole concentrations of 2.4×10^{19} cm^{-3} and a mobility of 50 $cm^2/v \cdot sec$ lased at 9000Å at threshold currents of 1.5×10^5 amp/cm^2. Investigations were also made of specimens in which the epitaxial layer, doped with zinc and partly compensated by lead, was grown on a tellurium-doped GaAs substrate with an electron concentration of 9.5×10^{17} cm^{-3} and a mobility of 2400 $cm^2/v \cdot sec$. These lased at room temperature at 9010 Å at currents of 3.8×10^5 amp/cm^2 and at 8910 Å at currents of 4.7×10^5 amp/cm^2 and up. The power per pass of p-GaAs lasers was 30 watts with 700-amp currents and 18-nanosec pulses; that of n-GaAs lasers was 10 watts with 300-amp currents and 30-nanosec pulses. Orig. art. has: 1 figure. [YK]

SUB CODE: 20/ SUBM DATE: 25Mar66/ ORIG REF: 001/ OTH REF: 003/ ATD PRESS: 5078

Card 2/2

SHAPIRO L.L., inzh; KATS, E.G.; NIKITINA, T.I.; TAYNOVICH, Z.S.

Reorganization of the lower echelon planning of building and assembling operations in the "Sevzapmorgidrostoi" Trust. Trudy TSNIIS no.34:113-126 '60. (MIRA 13:8)
(Wages) (Construction industry—Accounting)



NIKITINA, T.N.

Undulating wall in some Fusulinella. Vop. mikropaleont. no.5: 143-146 '61. (MIRA 14:8)

1. TSentral'naya nauchno-issledovatel'skaya laboratoriya Stalingradnefteob"yedineniye.
(Foraminifera, Fossil)

25800
S/048/61/025/005/014/024
B117/B220

24.2200

AUTHORS: Nikitina, T N , and Telesnin, R V

TITLE: System for the study of pulsed magnetic reversal of thin ferromagnetic films

PERIODICAL: Akademiya nauk SSSR. Izvestiya Seriya fizicheskaya, v. 25, no. 5, 1961, 619-621

TEXT: The present investigation was the subject of a lecture delivered at a symposium on thin ferromagnetic films (Krasnoyarsk July 4 to 7, 1960) To study the pulse properties of thin magnetic films the authors constructed a generator on the principle of the discharge of a long line over a hydrogen thyratron of the type TGI-130/10 (TGI-130/10) (Fig 1). The generator is designed in the form of a coaxial line This ensures the matching of the forming line with the load and makes it possible for parasitic parameters to be reduced to a minimum The thyratron is inserted into the central conductor (Fig 2) The total line length is 3.5 m The duration of the pulse front is 4 -- 5 $\cdot 10^{-9}$ sec (corresponding

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B117/B201

System for the study of pulsed

to a steepness of 10 a/10^{-9} sec , while the pulse duration is 40 10^{-9} sec. The current in the pulse may amount up to 60 a A part of the main pulse led through the delay line was used instead of a second generator leading the film back to the ground state prior to each working pulse It is thereby shifted by the required time interval with respect to the main pulse. The magnetizing winding of the specimen is connected to the circuit of the thyratron cathode The "back-leading" pulse is received through a 28.7 m long PK-6 (RK-6) cable with resistor and is transferred to the other winding of the specimen Due to the great cable length, the "back-leading" pulse is delayed by 40 10^{-9} sec with respect to the main pulse. The signals were observed with the aid of an NP 4 (IO-4) oscilloscope brought up-to-date with the following features (1) the 13Л037 (13L037) cathode-ray tube was replaced by one of the type 13Л03 (13L03). (2) the minimum scanning time was reduced from to 0.2 μsec Calibration was done by the sine curve provided by the LMS-55 high-frequency generator The secondary winding of the specimen consists of two halves differentially wound to each other It was wound in the form of an 8 over two halves of the core A very thin wire with a high resistance was used for the winding (180 ohms m^{-1}). The primary winding is

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wound over the core at a distance of 5 mm from the secondary winding. The core prepared in this way was placed in a copper shield during the experiments. The shield dimensions corresponded to the relation $D_S/D_W = 3$ (D_W - diameter of winding; D_S - diameter of shield). An 80 μ thick disk made of cold-rolled ХВП (KhVP) steel 15 mm in diameter was placed into the core, and the magnetic reversal pulse was recorded. The pulse was transmitted from the secondary winding (4 turns) directly onto the plates of IO-4 oscilloscope. The magnetic reversal pulse of a very small toroid with an inner diameter of 0.9 mm and an outer diameter of 1.5 mm, is considerable and almost reaches beyond the whole oscilloscope screen. Film pulses must be first amplified with the aid of a broad-band amplifier to the type УР-4 (UR-4) or the like. There are 5 figures and 3 Soviet-bloc references.

ASSOCIATION: Kafedra obshchey fiziki Fizicheskogo fakul'teta Moskovskogo gos. universiteta im. M. V. Lomonosova (Department of General Physics of the Physics Division, Moscow State University imeni M. V. Lomonosov)

25801
S/048/61/025/005/015/024
B117/B201

24.2200 (1158, 1396, 1482)

AUTHORS: Kolotov, O. S., and Nikitina, T. N

TITLE: Nanosecond pulse generator for studying the properties of ferromagnetic films in time

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25, no. 5, 1961, 622-623

TEXT: The present investigation was the subject of a lecture delivered at a symposium on thin ferromagnetic films (Krasnoyarsk, July 4 to 7, 1960) A current pulse generator is discussed. the circuit diagram (Fig. 1) of which is based on the principle of a succession of signal limitation and signal amplification. The blocking generator which is containing 6П14П ($Л_1$) (6P14P (L_1)) tube generates a pulse with a rise time of $2 \cdot 10^{-8}$ sec, an amplitude of 180 v. and a total duration of 10^{-7} sec. This pulsed voltage is taken from the secondary winding of the transformer and transmitted to the input of a stage amplifier, working as a limiter with a cathode resistance on the tube $Л_2$ (L_2). The voltage pulse taken from

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Nanosecond pulse generator for...

depending upon the capacitance in the grid-current circuit of the blocking generator, was chosen. It amounted to 10^{-7} sec. The oscillogram of the pulse front showed that the rise time was less than $2 \cdot 10^{-9}$ sec. The generator is put into operation by a positive pulse with an amplitude of 40 v and a rise time of $(0.1 — 0.2) \cdot 10^{-9}$ sec. If necessary, the unit will operate with natural oscillations at a pulse repetition frequency up to 5 kilocycles. To reduce the inductance of the anode circuit the 6П13С (6P13S) tube was shielded by a metal cylinder 45 mm in diameter. The circuit was constructed of ordinary radiotechnical parts; capacitors КСО (KSO) and resistors ВС (VS) were employed. Since the oscillator tubes are blocked in their stable state, the current consumption is very low. The mean capacitance distributed over the electrodes is within the range of admissible values. R. V. Telesnin is thanked for interest displayed. [Abstracter's note: Essentially complete translation.] There are 2 figures and 4 Soviet-bloc references.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gos. universiteta im. M. V. Lomonosova (Division of Physics of Moscow State University imeni M. V. Lomonosov)

L 22460-65 EWT(d)/BXT/EED-2/EWP(1) Po-4/Pq-4/Pg-4/Pk-4 IJP(c) BB/GG

ACCESSION NR: AP5000890 S/0315/64/000/009/0039/0043

AUTHOR: Nikitina, T.N. 27 B

TITLE: First model of a grammar of valencies for syntactic analysis of Chinese technical texts

SOURCE: Nauchno-tekhnicheskaya informatsiya, no. 9, 1964, 39-43

TOPIC TAGS: applied linguistics, syntactic analysis, Chinese language, word valency, machine translation 16

ABSTRACT: The principles on which the first variant of a grammar of valencies for automatic syntactic analysis of Chinese texts are based are presented. Part of the derived grammar is described and deals with classification of verbs and certain valence-position rules formulating the conditions of realizing individual valencies. The verb classes listed and discussed are: I Transitive verbs with one direct object; II Verbs transitive in meaning but not forming either constructions with inverse objects by means of a preposition, constructions with a personage or constructions with the particles SUO or BEI; III Verbs with two direct objects; IV Significant linking verbs; V Monosyllabic verbs of transformation and naming; VI Disyllabic verbs of naming and transformation;

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L 22460-65

ACCESSION NR: AP5000890

VII Verbs with a verb-following preposition; VIII Verbs of stress; IX Verbs of deprivation; X Derived verbs ending with HUA; XI The verb SHI; XII Causal verbs; XIII Verbs controlling a clause; XIV Verbs of speech; XV Intransitive verbs; XVI Verbs of appearance and being; XVII Transitive-intransitive verbs; XVIII Verbs of sense; XIX Modal verbs; XX The copulative SHI (JIUSHI); XXI The verb YOU. Thirty nine sample sentences are treated.

ASSOCIATION: none

SUBMITTED: 10Mar64 ENCL: 00 SUB CODE: DP

NO REF SOV: 001 OTHER: 000

Card 2/2

KOLOTOV, O.S.; NIKITINA, T.N.

Amplification of nanosecond pulses. Izv.AN SSSR.Ser.fiz. 25 no.5: 624-627 My '61. (MIRA 14:5)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta im. M.V.Lomonosova.
(Metallic films--Magnetic properties) (Oscillography)

43926
S/188/62/000/006/011/016
B125/B104

24,2200

AUTHOR: Nikitina, T. N.

TITLE: Investigation of thin permalloy films in weak remagnetizing fields

PERIODICAL: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 6, 1962, 59 - 62 .

TEXT: The times of remagnetization of thin permalloy fims and the amplitudes of the signals of a pulse generator occurring in such remagnetizations were measured with $H_{rev} \approx H_c$ where H_{rev} is the field strength causing remagnetization and H_c is the coercive force. With $H_{rev} < H_c$ the magnetization of the film is reversed within 10 - 12 mμ sec, and only signals of $\lesssim 1$ mv of reversible processes are observed. These processes are independent of the film thickness and are caused by slight displacements in the region of the nuclei of the new phase. The amplitudes and the length of the processes due to high H_{rev} remain unchanged when H_{rev} in-

Card 1/2

40950

S/109/62/007/007/018/018
D256/D308

AUTHORS: Telesnin, R. V., Kolotov, O. S. and Nikitina, T. N.

TITLE: Amplitude and time characteristics of some ferromagnetic films

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 7, 1962, 1235-1240

TEXT: The authors investigated the dependence of the speed of the magnetic polarity reversal of ferromagnetic films upon the reversing magnetic field. The films of 79 NM (79 NM) type molybdenum permalloy and a permalloy comprising 78.8% Ni and 21.2% Fe were vacuum-evaporated upon polished glass plates. The anisotropies of the films were determined from the hysteresis loops using 3 nsec rise-time and 240 nsec width pulses for the reversal of the polarity. The signals detected from the films were amplified using a previously described circuit (O. S. Kolotov and T. N. Nikitina, *Izvestiya AN SSSR. Seriya fizicheskaya, v. 25, no. 5, 1961, 625); the signals were then displayed on the screen of a fast c.r.o. The direc-

Card 1/2 * S/048/61/025/005/016/024

NIKITINA, T.N.

Study of thin permalloy films in weak magnetic reversal fields. Vest.Mosk.un. Ser.3:Fiz.,astron. 17 no.6:59-62 N-D '62. (MIRA 15:12)

1. Kafedra obshchey fiziki Moskovskogo universiteta.
(Permalloys) (Magnetic fields)

L 18574-63 EWT(1)/EWT(m)/EWP(q)/BDS AFFTC/ASD/ESD-3/IJP(C) GG/JD

ACCESSION NR: AP3001302 S/0181/63/005/006/1737/1740

AUTHORS: Kolotov, O. S.; Nikitina, T. N.; Salanskiy, N. M.

TITLE: Dispersion of anisotropy in thin ferromagnetic films

SOURCE: Fizika tverdogo tela, v. 5, no. 6, 1963, 1737-1740

TOPIC TAGS: dispersion, anisotropy, ferromagnetic, magnetic moment, permalloy, reversing field, magnetization

ABSTRACT: The authors investigated the change in magnetic moment of a film from the hard to the easy direction. A film of permalloy 79NMA was placed in a remagnetizing line in such a position that the reversible field was directed along the trend of difficult magnetization. The change in moment was observed at the trailing edge of the reversing pulse, which had a duration of 4 millimicroseconds. Measurements on the duration of the change from direction of difficult magnetization to that of easy magnetization proved to be independent of the value of the perpendicular magnetic field (within the limits of experimental error). The duration of this change was measured at 18 ± 4 millimicroseconds on one film, 12 ± 4 millimicroseconds on another. It becomes obvious that apparatus with greater resolving power is required for more careful

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L 18574-63

ACCESSION NR: AP3001302

3

investigations on this subject. The setup used in the investigations of the present paper has been described in the papers of O. S. Kolotov, Yu. N. Lobanov, and Z. Shil'berskiy (PTE, No. 3, 87, 1961); O. S. Kolotov, T. N. Nikitina (Izv. AN SSSR, ser. fiz., 25, 625, 1961); and O. S. Kolotov, A. A. Sanin, and Z. Shil'berskiy (PTE, No. 5, 82, 1961). "In conclusion the authors consider it their duty to express thanks to Professor R. V. Telesnin for his attention to this work and for valuable critical remarks." Orig. art. has: 1 photograph and 1 figure.

ASSOCIATION: Moskovskiy gosudarstvenny*y universitet im. M. V. Lomonosova (Moscow State University); Institut fiziki SO AN SSSR Krasnoyarsk (Institute of Physics, SO Academy of Sciences, USSR)

SUBMITTED: 02Feb63 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: PH NO REF SOV: 004 OTHER: 002

Card 2/2

ACCESSION NR: AP4028460 S/0181/64/006/004/1234/1235

AUTHORS: Telesnin, R. V.; Nikitina, T. N.

TITLE: The effect of anisotropy dispersion on the dynamic properties of thin permalloy films

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 1234-1235

TOPIC TAGS: permalloy, thin film, magnetism reversal, switching coefficient, permalloy 79 NMA

ABSTRACT: The authors set themselves the task of finding the connection between the dynamic properties of thin permalloy films (the time of magnetic reversal and the switching coefficient) and the dispersion of anisotropy in a particular direction. Measurements were made on films obtained by sputtering permalloy 79 NMA in a vacuum of 10^{-5} mm Hg on a glassy, optical, polished base. It was found that the switching coefficient increases linearly with increase in angular dispersion of anisotropy. It depends only on dispersion, not on how the dispersion was obtained (such as temperature of base during sputtering). The authors conclude that the rate of magnetic reversal in the films in the field of coherent rotation

Card 1/2

ACCESSION NR: AP4039594 S/0126/64/017/005/0672/0677

AUTHORS: Telesnin, R. V.; Nikitina, T. N.

TITLE: The effect of anisotropy dispersion on the dynamic properties of thin permalloy films

SOURCE: Fizika metallov i metallovedeniye, v. 17, no. 5, 1964, 672-677

TOPIC TAGS: anisotropy, thin film, permalloy, vacuum vapor deposition, temperature dependence, magnetic field/ 79NMA permalloy

ABSTRACT: The authors have investigated the effect of the parameters of film deposition (substrate temperature and strength of external magnetic field) on the dispersion of anisotropy. The films were obtained by vacuum vapor deposition of 79NMA permalloy (at 10^{-5} mm Hg) on optically polished substrates of glass. About 300 films were prepared (8 mm in diameter, 1300-1500 Å in thickness). The substrates were cleaned chemically and then heated at 300C for 3-4 hours (before film deposition). Substrate temperature during deposition ranged from 20 to 320C, and the magnetic field ranged from 0 to 250 oersteds. The dynamic properties were measured by a pulse method. The films were so oriented that the pulsing field

Card 1/2

L 13745-65 EWT(1)/EWT(m)/EWA(d)/T/EWP(t)/EWP(b) IJP(c) GG/WJW/JD
ACCESSION NR: AP4047859 S/0188/64/000/005/0011/0014

AUTHOR: Telesnin, R. V.; Nikitina, T.N.

TITLE: The effect of the thickness of thin permalloy films on their dynamic properties

SOURCE: Moscow. Universitet. Vestnik. Seriya 3. Fizika, astronomiya, no. 5, 1964, 11-14

TOPIC TAGS: permalloy film, magnetic reversal time, switching factor, film thickness

ABSTRACT: The paper studies the magnetic reversal time and switching factor as a function of film thickness; since the switching factor also depended on anisotropy, the latter had to be standardized first. The films were made by vapor-deposition of permalloy 79NMA in a vacuum of 10^{-5} mm Hg onto an optically polished glass substrate heated to 240C in an external field of 100 oe. The dynamic properties were studied with the aid of pulse-equipment described in earlier papers by the authors. The pulsed reversal field was oriented accurately along the average direction of easy magnetization of the film and reversal time was measured as a function of applied field with and without the presence of a steady transverse

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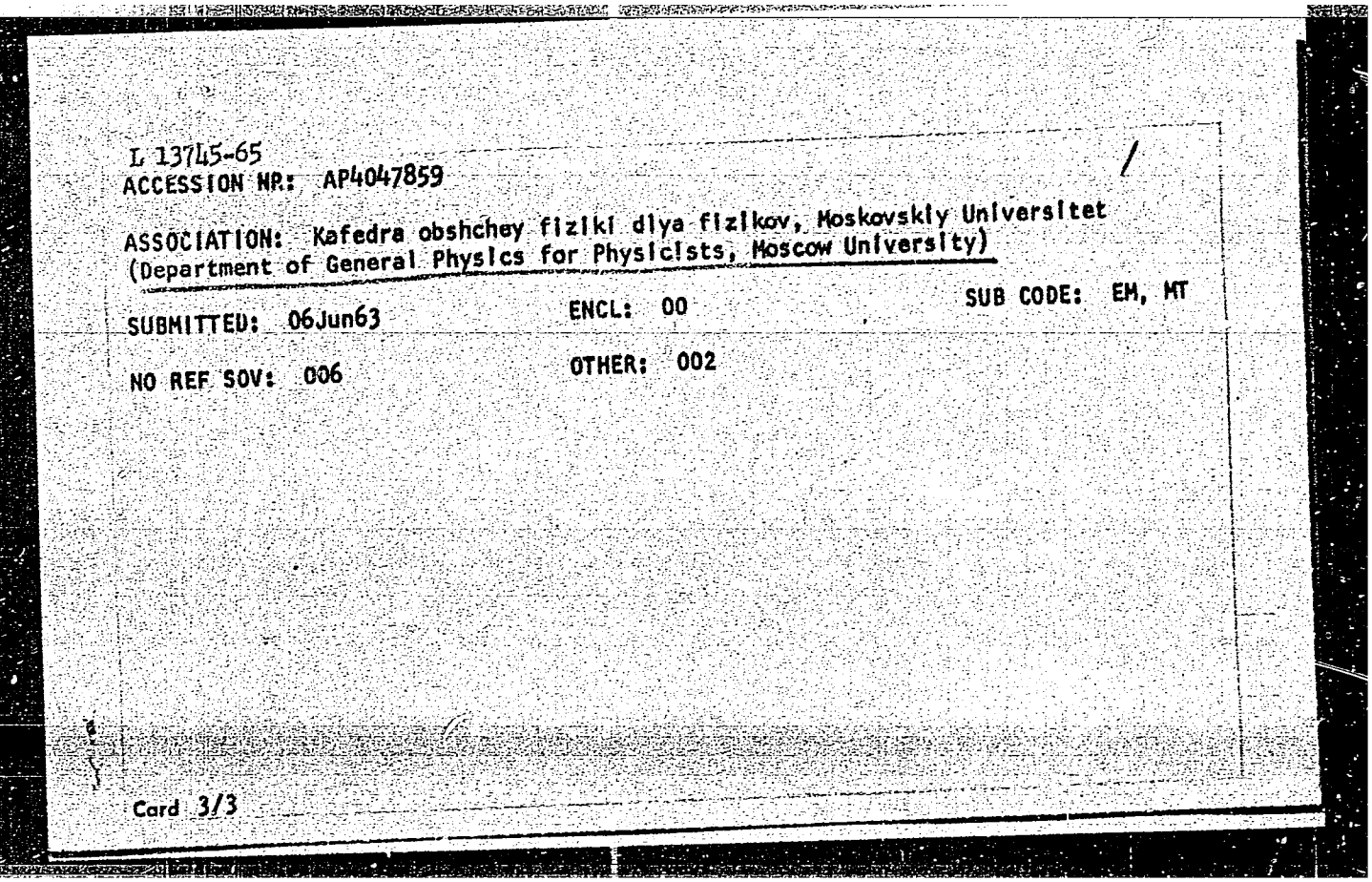
L 13745-65
ACCESSION NR: AP4047859

field of 0.18 oe. The anisotropy was also measured by a pulse method. The films chosen had thicknesses ranging from 3000 to 100 Å and roughly equal anistropy. It was noted that in thinner films (100-200 Å) the region of incoherent rotation was significantly less (2.5-3.5 oe) than in thicker films (2.5-5.5 oe) and transition to coherence occurred at smaller fields. The switching factor S_w, defined as the cotangent of the slope angle of the curve for the reciprocal of the magnetization reversal time after breaking, characterizes the transition from incoherent to coherent rotation for the case of a 0.18 oe steady field applied in the hard direction. Graphs for this factor show that it increases sharply (from 0.05 to 0.3-0.37 μ sec) as thickness increases from 800-1000 Å. These graphs also illustrate the dependence of S_w on the anisotropy of the films, the effect being especially strong for films of 1000 Å and greater. Application of a transverse field of 0.16 oe slightly speeds up magnetization reversal in films 100-200 Å thick, while for thicker films it decreases S_w by a factor of two. Hysteresis loops were obtained at 1000 cps for all films and the static characteristics were measured and graphed. It is concluded that measurement of the effect of film thickness on dynamic properties requires use of films with the same degree of anisotropy because film thickness strongly affects S_w (between 100 and 800-1000 Å for noncoherent rotation and from 100 to 1400-2000 Å for coherent rotation). Orig. art. has: 3 figures.

Card 2/3



L 13745-65
ACCESSION NR: AP4047859

ASSOCIATION: Kafedra obshchey fiziki dlya fizikov, Moskovskiy Universitet (Department of General Physics for Physicists, Moscow University)

SUBMITTED: 06Jun63 ENCL: 00 SUB CODE: EM, MT

NO REF SOV: 006 OTHER: 002

Card 3/3

ACCESSION NR: AP4023409 S/0048/64/028/003/0572/0579

AUTHOR: Telesnin, R.V.; Il'icheva, Ye.N.; Kanavina, N.G.; Kolotov, O.S.; Nikitina, T.N.; Shishkov, A.G.

TITLE: Investigation of some dynamic properties and the domain structure of thin iron-nickel films /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v.28, no.3, 1964, 572-579

TOPIC TAGS: thin ferromagnetic films, thin permalloy films, thin film domain structure, thin film coercive force, film magnetization switching, thin film hysteresis

ABSTRACT: The dispersion of the direction of the anisotropy axis, magnetization reversal (switching) time, coercive force, and anisotropy field were measured for a number of thin films of permalloy 79НМА. Changes in the domain structure of the films during quasistatic magnetization reversal were observed by means of the magnetooptical Kerr effect. The films were vacuum deposited on polished glass at various temperatures and with various values of applied magnetic field. The dispersion of the anisotropy was measured by a slight modification of the method of D.O.Smith

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ACCESSION NR: AP4023409

(J.Appl.Phys.33,1399,1962). The field $H_{0.7}$ at which the flux linking the transverse coil reached 0.7 of its maximum value was taken as a measure of the dispersion. Both $H_{0.7}$ and the switching ratio (the product of the magnetization reversal time by the excess of the magnetizing field over the coercive force) behaved similarly as functions of the temperature and magnetic field at deposition. From this it is concluded that the dynamic properties of the films are determined by the dispersion of anisotropy. Curves showing the reciprocal of the magnetization reversal time as a function of the magnetizing field in the presence of a constant transverse field were straight lines hvaing a single sharp bend. The bend is interpreted as indicating a transition from magnetization by uniform rotation to magnetization by non-uniform rotation. The product of the magnetizing field and the transverse field at the transition was a linear function of $H_{0.7}$ for films of the same thickness. From an analysis of the rather complex hysteresis phenomena observed in films with a tapering edge (thickness falling to zero over a distance of 1 or 2 mm), and from observations of the accompanying changes of domain structure, it was possible to determine the field at which reverse magnetization nuclei began spontaneously to form. This field was 2.0 Oe for nearly all the films, regardless of thickness. Critical curves for magnetization reversal in slowly changing fields making various angles

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ACCESSION NR: AP4023409

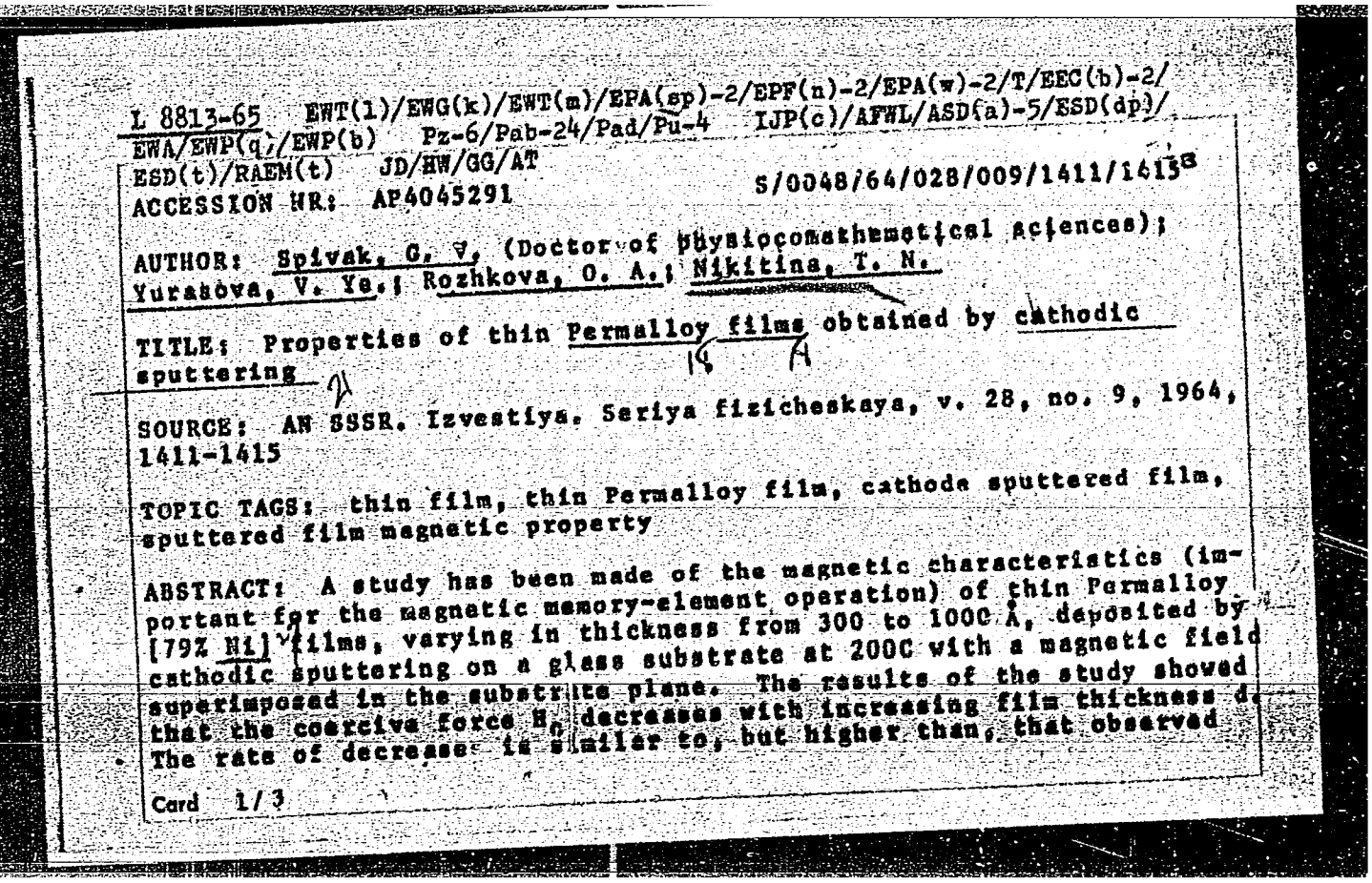
with the easy magnetization axis did not conform to the theory of uniform rotation of magnetization. Both domain wall displacement and incoherent rotation appeared to be involved. The critical angle was a function of the ratio of the coercive force to the anisotropy field, and was independent of film thickness. The values obtained for films from 1200 to 1700 Å thick agree with those obtained by W.Metzdorf (Z.Ang. Phys.14,7,421,1962) for films of half this thickness. In films having a tapering edge, magnetization reversal in fields making a small angle with the easy magnetization axis occurred suddenly; a reverse magnetization nucleus would expand to fill the whole film as soon as it was formed. Orig.art.has: 1 formula, 12 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 10Apr64 ENCL: 00

SUB CODE: PH NR REF SOV: 006 OTHER: 005

3/3
Card



L 8813-65 EWT(1)/EWG(k)/EWT(m)/EPA(sp)-2/EPF(n)-2/EPA(w)-2/T/EEC(b)-2/EWA/EWP(q)/EWP(b) Pz-6/Pab-24/Pad/Pu-4 IJP(c)/AFWL/ASD(a)-5/ESD(dp)/ESD(t)/RAEM(t) JD/HW/GG/AT

ACCESSION NR: AP4045291 S/0048/64/028/009/1411/1415

AUTHOR: Spivak, G. V. (Doctor of physicomathematical sciences); Yurasova, V. Ya.; Rozhkova, O. A.; Nikitina, T. N.

TITLE: Properties of thin Permalloy films obtained by cathodic sputtering

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 28, no. 9, 1964, 1411-1415

TOPIC TAGS: thin film, thin Permalloy film, cathode sputtered film, sputtered film magnetic property

ABSTRACT: A study has been made of the magnetic characteristics (important for the magnetic memory-element operation) of thin Permalloy [79% Ni] films, varying in thickness from 300 to 1000 A, deposited by cathodic sputtering on a glass substrate at 200C with a magnetic field superimposed in the substrate plane. The results of the study showed that the coercive force H_c decreases with increasing film thickness d. The rate of decrease is similar to, but higher than, that observed

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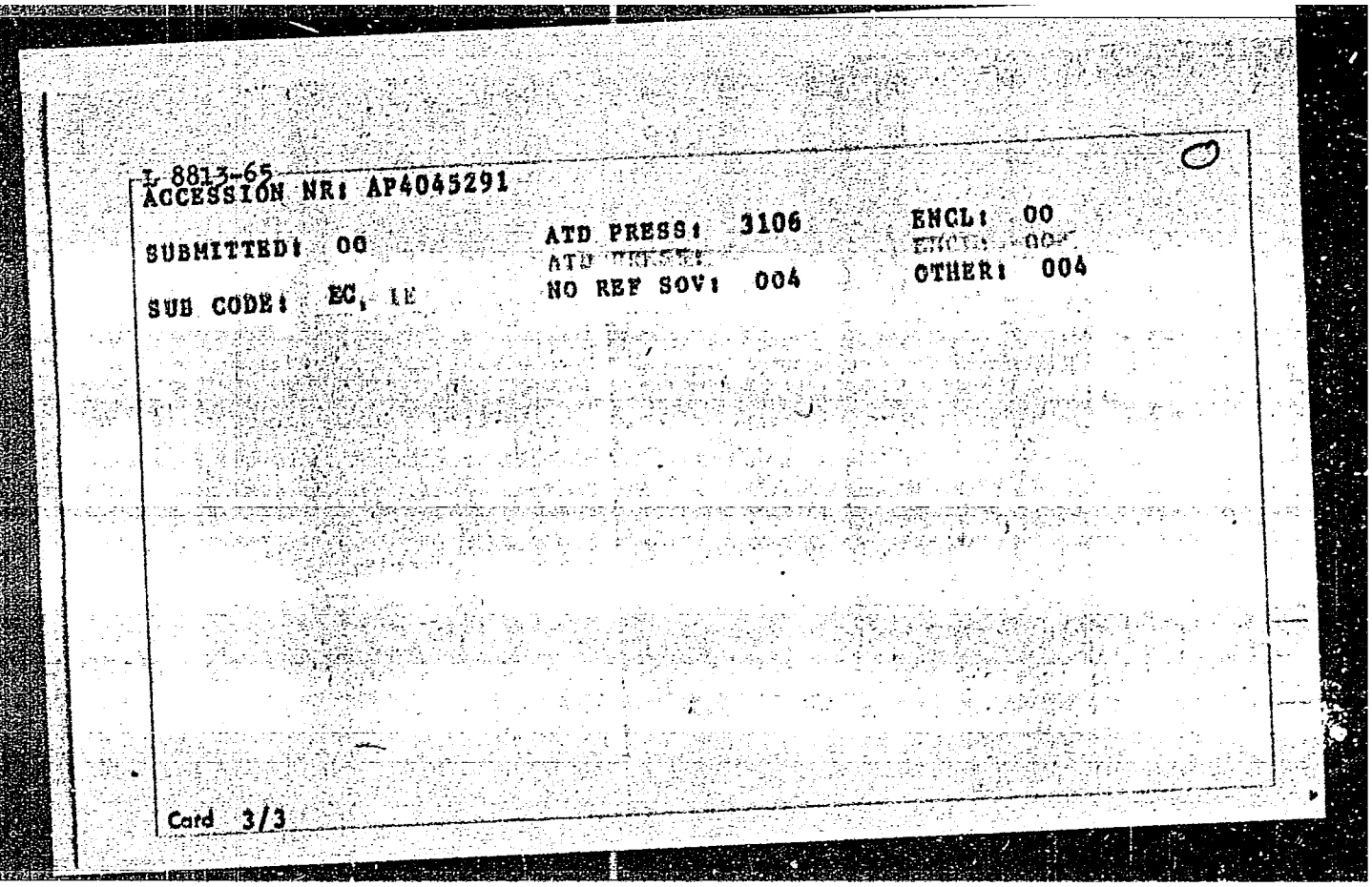
L 8813-65
ACCESSION NR: AP4045291

in vapor-deposited films. The films deposited with a superimposed magnetic field of 150 oe had the lowest H_c. The dependence of the anistropy field H_k on d was similar to that for H_c; it decreased with increasing d and was at a minimum in films deposited with a superimposed magnetic field of 150 oe. A maximum H_k was obtained with a superimposed field of 235 oe. The film saturation induction B_s varied from 11,000 to 7000 gs, regardless of d. The hysteresis-loop rectangularity coefficient $K = B_r/B_s$, where B_r is the residual magnetization, daviates from unity with d increasing to 700 Å and beyond. The deviation is probably caused by a rather low anistropy in films of such thickness. At the maximum reverse magnetic field H_r of 10 oe, the films required from 20 to 45 nsec for reverse magnetization. The reverse magnetization time decreased linearly with decreasing film thickness d. Electron microscopic examination showed that the films have a polycrystalline structure with an fcc lattice. Orig. art. has: 5 figures.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta (Department of Physics, Moscow State University)

Card 2/3



L 8813-65
ACCESSION NR: AP4045291

SUBMITTED: 00 ATD PRESS: 3106 ENCL: 00

SUB CODE: EC, IE NO REF SOV: 004 OTHER: 004

Card 3/3

NIKITINA, T.N.

First model of a grammar of values for the syntactic analysis of Chinese scientific texts. NTI no.9:39-43 '64. (MIRA 18:2)

L 50981-65 EWT(l)/EWT(m)/EWP(l)/EWA(d)/T/EWP(t)/EEC(b)-2/EWP(z)/EWP(b) Pi-4
IJP(c) MJW/JD/GG

ACCESSION NR: AP5011427 UR/0048/65/029/004/0548/0551

AUTHOR: Telesnin, R.V.; Nikitina, T.N. 10 B

TITLE: Concerning the effect of dispersion of anisotropy on the dynamic properties of thin Permalloy films /Report, Second All-Union symposium on the Physics of Thin Ferromagnetic Films held in Irkutsk, 10-15 July 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 4, 1965, 548-551

TOPIC TAGS: ferromagnetic thin film, permalloy, magnetization, anisotropy, domain structure

ABSTRACT: Previous studies by the authors)Fiz. metallov i metallovedenie, 17, 672, 1964; Fiz. tverdogo tela, 6, 1234, 1964; Vestnik Mosk. un-ta, Ser. III, Fizika i astronomiya, No. 5, 11, 1964) showed that the rate of pulse switching of thin ferromagnetic films depends not only on the strength and direction of the reversing field but also on the thickness of the film and the magnitude of the angular dispersion of its anisotropy. The present paper gives additional data on the variation of the switching rate with the angular dispersion of anisotropy. The experiments were carried out on 79NMA Permalloy films deposited by thermal evaporation onto glass substrates; the degree of angular dispersion was varied by varying the substrate

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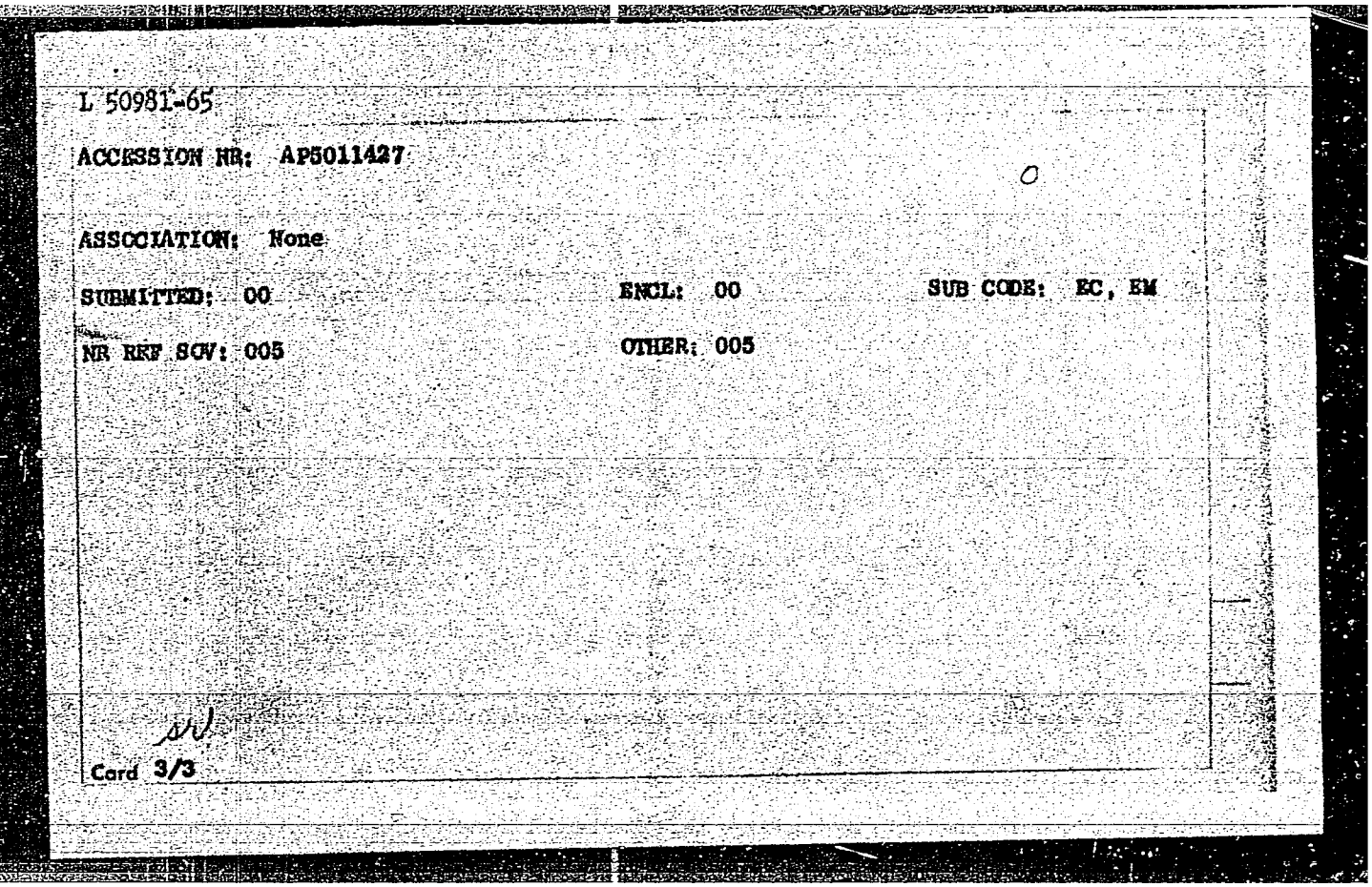
ACCESSION NR: AP5011427

temperature and the field applied during deposition. The procedure and equipment for measuring the switching coefficient S_w were the same as described in the third reference cited above. Electron microscope studies disclosed that the size of the crystallites increases with increase of the substrate temperature. The experimental results are presented in the form of plots of $\Delta_{0.7}/H_k$ (characterizing the angular dispersion) and S_w versus the substrate temperature and versus the field during deposition (at substrate temperatures of 240 and 320°C). The corresponding curves are analogous. Hence the points plotted in S_w versus $\Delta_{0.7}/H_k$ coordinates are grouped about straight lines with different slopes depending on H_k. A distinction is made between "microdispersion" (evinced in the form of a network of narrow domains) and "macrodispersion" (evinced in the form of large domains on the surface of the film after removal of a saturation field applied in the hard direction). Both types of dispersion are reduced with increase of the field applied in deposition, but "microdispersion" tends to increase with increase of the substrate temperature above 200°C. On the whole, the present experiments confirm that in the region of unidirectional rotation the reversal rate does depend on the magnitude of the angular dispersion of the anisotropy. Orig. art. has: 5 figures.

Card 2/3



L 50981-65

ACCESSION NR: AP5011427

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ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: EC, EM

NR REF SOV: 005 OTHER: 005

Card 3/3

L 50968-65 EWT(1)/EPA(s)-2/EWT(m)/EWP(i)/EWA(d)/T/EWP(t)/EEC(b)-2/EWP(z)/EWP(b)
Pt-7/Pi-4 IJP(c) UR/0048/65/029/004/0557/0559
ACCESSION NR: AP5011430 JD/GG

AUTHOR: Durasova, Yu. A.; Nikitina, T. N.

TITLE: Some electron microscopic and electron diffraction studies of the structure of thin Permalloy films /Report, Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held in Irkutsk, 10-15 July 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 4, 1965, 557-559

TOPIC TAGS: ferromagnetic thin film, permalloy, magnetic property

ABSTRACT: In vies of the lack of adequate data on the subject, the work was undertaken for the purpose of investigating the crystal structure and magnetic properties of Permalloy films as functions of the substrate temperature during vacuum deposition onto polished glass substrates. The material used was 79 NMA Permalloy. The rate of deposition was 20 to 30 Angstroms per sec; the applied field was 100 Oe; the substrate temperatures were 20, 100, 300, and 400°C. The film structure was studied by means of an UEMV-100 electron microscope and an EM-40 electron diffraction instrument. The films were etched in a discharge; following which carbon replicas were made for the microscopic studies. The results are summarized

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L 50968-65
ACCESSION NR: AP5011430

in the table shown in the Enclosure. Some micrographs are reproduced in the text. The main conclusions are that the dimensions of the crystallites increase with the substrate temperature and that the films with the largest crystallites exhibit the maximum degree of dispersion of the anisotropy and can be classed as anomalous films. "In conclusion, we express our gratitude to R.V.Telesin for his constant and attentive guidance of the work and to A.I.Krokhina for assistance and advice with regard to the ionic-etching." Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 00/ ENCL: 01 SUB CODE: EM, EC

NR REF SOV: 000 OTHER: 005

Card 2/3

L 50992-65 EWT(l)/EPA(s)-2/EWT(m)/EWP(l)/EWA(d)/T/EWP(t)/EEC(b)-2/EWP(z)/EWP(b) 58 53 B
Pt-7/Pi-4 IJP(c) JD/GG
ACCESSION NR: AP5011447 UR/0048/65/029/004/0634/0638

AUTHOR: Spivak,G.V.; Shelyakin,L.B.; Nikitina,T.N.; Yurasova,V.Ye.; Filippova,T.F.; Prokhorov,Yu.A. 15

TITLE: Magnetic properties of Permalloy films formed in ion bombardment /Report, Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held in Irkutsk 10-15 July 1964/ III

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 4, 1965, 634-638

TOPIC TAGS: ferromagnetic thin film, permalloy, magnetic property 21

ABSTRACT: The work was undertaken in view of the growing use of thin films in electronics and the consequent need for new and better film preparation techniques. Preparation of films by ion bombardment has a number of distinctive features and advantages (G.V.Spivak, V.E.Yurasova, O.A.Rozhkova, and T.N.Nikitina, Izv. AN SSSR, Ser. fiz., 28, 1411, 1964, and other papers by the Spivak group). Primary among these is good correspondence of the composition of the film with that of the initial, sputtered material. One of the objections to the ion bombardment technique is that inert gas atoms, present in the discharge chamber, become imbedded in

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L 50992-65

ACCESSION NR: AP5011447

the film and impair its properties. In the present experiments a series of films of different types of Permalloy were prepared in glow and arc discharges in an inert gas atmosphere. The orienting field was provided by a pair of Helmholtz coils. The substrates were glass, glass precoated with quartz, aluminum, aluminum cleansed by ionic etching, and rock salt. The substrates were washed before installation in the apparatus and then further cleansed by the discharge before deposition of the films. The films were investigated as regards some of their magnetic properties and subjected to chemical analyses for comparison with the analytic composition of the initial sputtered materials. Electron micrographs and electron diffraction patterns (one of each is reproduced) indicate that the Permalloy films were polycrystalline with a fine-crystal structure. The films on uncleansed Al were of poor quality, but those on cleansed Al were similar to films deposited on glass. Some magnetic data on the films, including curves of the inverse switching time versus switching field, are given in tables and figures. The results show that given proper control of the sputtering conditions and parameters it is feasible to prepare by this technique Permalloy films with characteristics similar to those of films prepared by thermal evaporation; the attainable reproducibility is satisfactory: for example, the scatter of coercive force values in a series of films was less than 10%. "In conclusion, we express

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L 50992-65

ACCESSION NR: AP5011447

5

our gratitude to R.V.Telesin, V.I.Kozlov, B.I.Sokolov, V.Yakovlev, and V.Kaskova for consultations and assistance in the work." Orig. art. has: 6 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: EM, EC

NR REF SOV: 004 OTHER: 004

Card 3/3

L 32778-66 EWP(k)/EWP(e)/EWP(t)/ETI IJP(c) JD/HW

ACC NR: AP6012798 SOURCE CODE: GE/0030/66/014/002/0371/0380

AUTHOR: Telesnin, R. V.; Ilicheva, E. N.; Kolotov, O. S.; Nikitina, T. N.; Pogozhev, V. A.

ORG: Faculty of Physics, University of Moscow

TITLE: Experimental investigation of some features of incoherent rotation in thin permalloy films [Contribution to the International Colloquium on Magnetic Thin Films held from 25 to 28 April 1966 in Jena]

SOURCE: Physica status solidi, v. 14, no. 2, 1966, 371-380

TOPIC TAGS: permalloy, metal film, incoherent rotation, magnetic domain structure, magnetic thin film

ABSTRACT: Some features of the mechanism of nonhomogenuous rotation in thin permalloy films reversed by pulse fields are investigated: switching coefficient, threshold fields, and parameters of transition to fast magnetic reversal. The behavior of the films is also investigated for fields applied along the "hard" axis. The results are compared with the static parameters of thin films: anisotropy field,

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L 15419-66 EWT(m)/EWP(e)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/JD

ACC NR: AP6004482 UR/0048/66/030/001/0108/0111

AUTHOR: Telesnin,R.V.; Kolotov,O.S.; Nikitina,T.N.; Pogozhev,V.A.

ORG: Physics Department, Moscow State University im. M.V.Lomonosov (Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta)

TITLE: Investigation of nonuniform rotation processes in thin Permalloy films [Transactions of the Second All-Union Symposium on the Physics of Thin Ferromagnetic Films held at Irkutsk 10 July to 15 July, 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 1, 1966, 108-111

TOPIC TAGS: ferromagnetic film, magnetic thin film, permalloy, magnetic domain structure, magnetic coercive force, magnetic anisotropy, pulsed magnetic field

ABSTRACT: The anisotropy and threshold fields of a number of 79NiA Permalloy films of thickness from 470 to 2800 Å were measured and are compared. The threshold fields were obtained by extrapolation of the linear portion of the curve giving the inverse switching time along the easy axis as a function of the switching field, and the anisotropy fields were determined from hysteresis loops or with a ferromagnetic resonance apparatus. The investigated films fell into two catagories: those which were left with a fine domain structure when a strong field along the hard axis was suddenly removed, and those which, under the same conditions broke up into a few large domains. The threshold fields of the films with the fine domain structure were considerably

Card 1/2

NIKITINA, T.P.

Adrenal cortex function in healthy children. Vop. okh. mat. i det. 6 no.9:11-13 S '61. (MIRA 14:9)

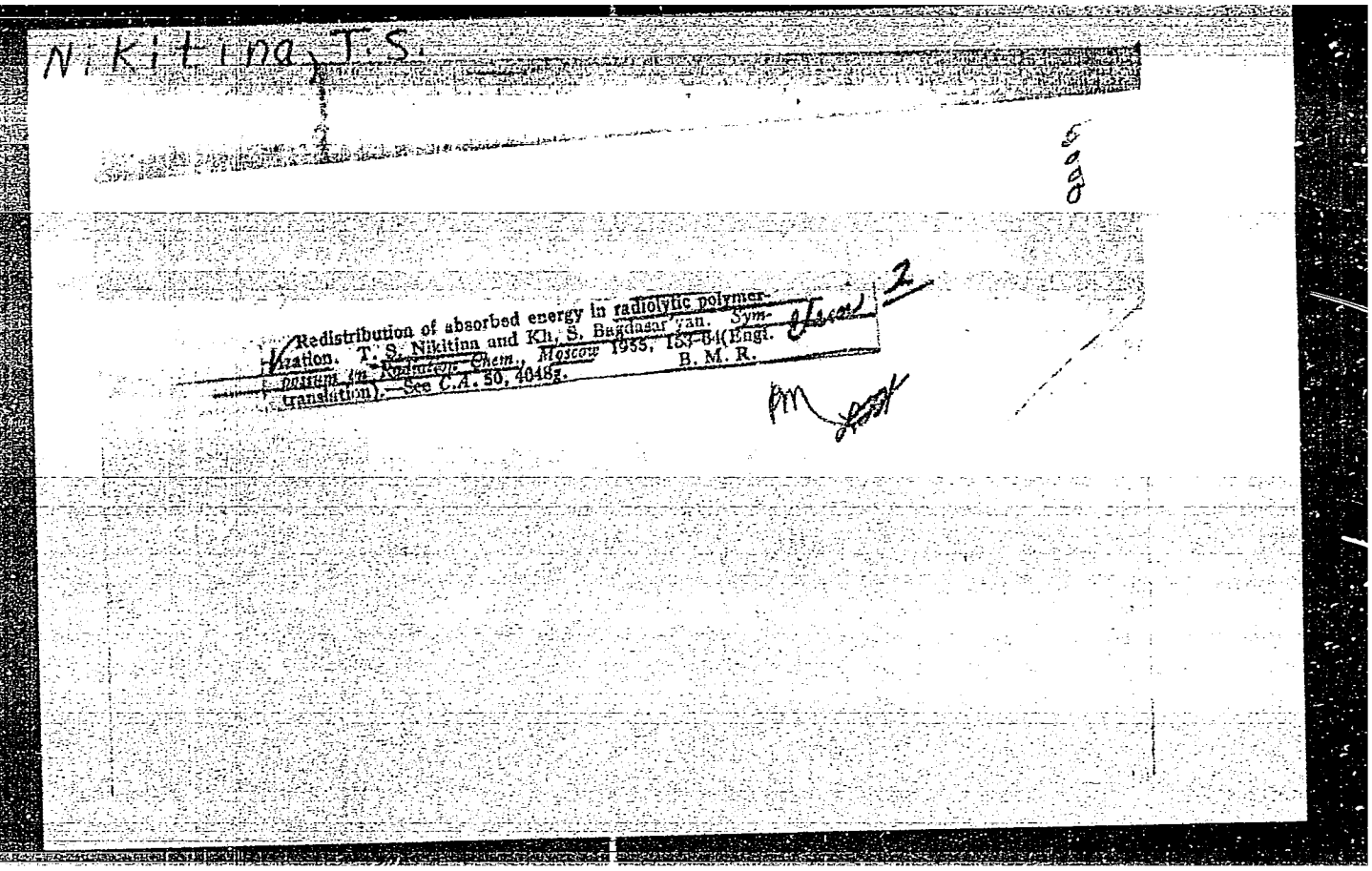
1. Iz kafedry pediatrii (zav. - doktor meditsinskikh nauk prof. E.A. Gornitskaya) I Leningradskogo meditsinskogo imeni akademika I.P. Pavlova (dir. A.I.Ivanov) i detskoy bol'nitsy imeni N.F.Filatova (glavnyy vrach I.K.Sokolova).

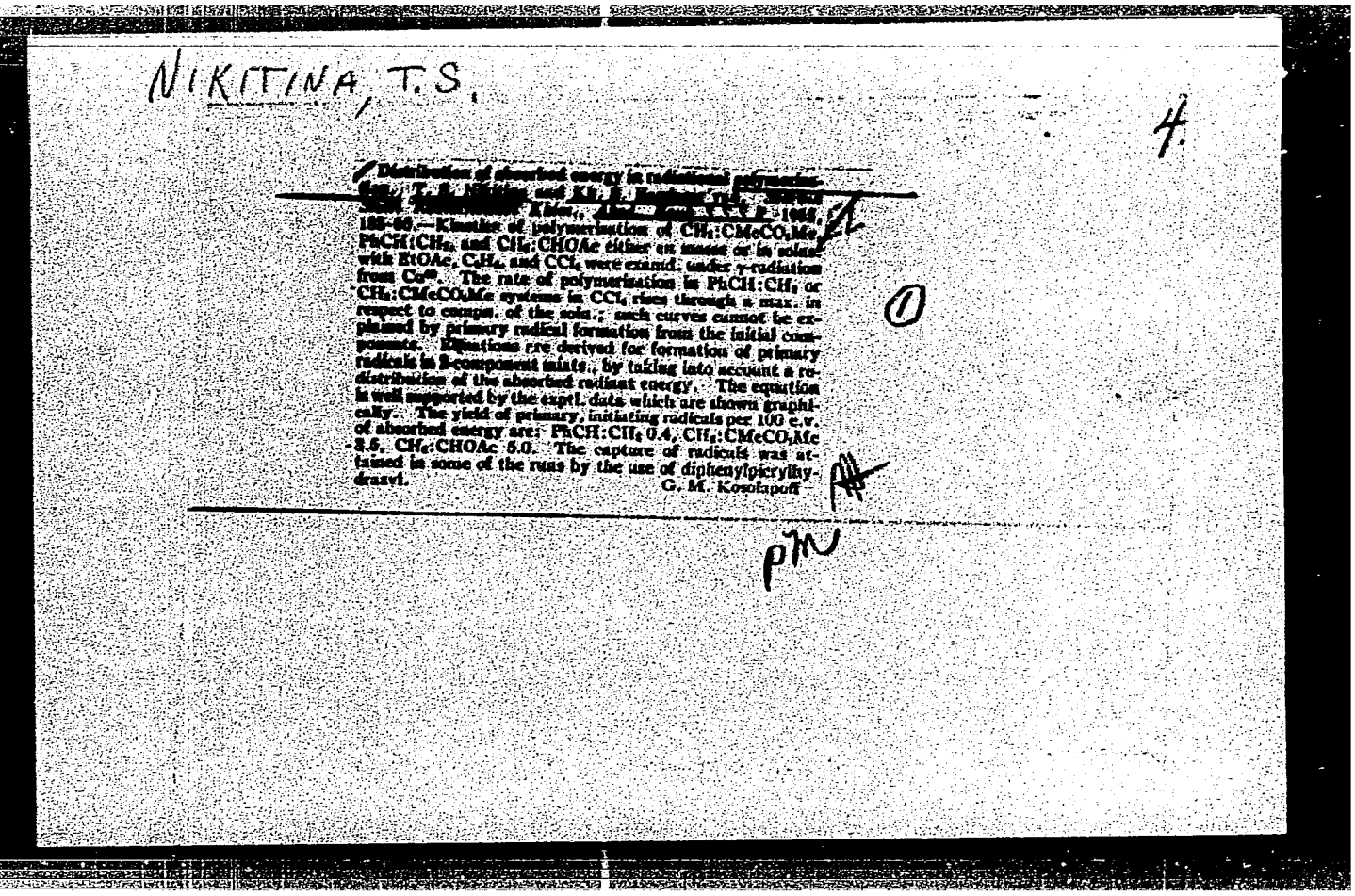
(STEROIDS) (ADRENAL CORTEX)

NIKITINA, T. S.

NIKITINA, T. S. --"Polymerization of Vinyl Compounds under the Action of Gamma Irradiation." Min Chemical Industry USSR, Order of Labor Red Banner Physicochemical Sci Res Inst imeni L. Ya. Karpov, Moscow, 1955 (Dissertation For the Degree of Candidate in Chemical Sciences)

SO: Knizhnaya letopis' No. 37, 10 September 1955





NIKITINA, T.S.

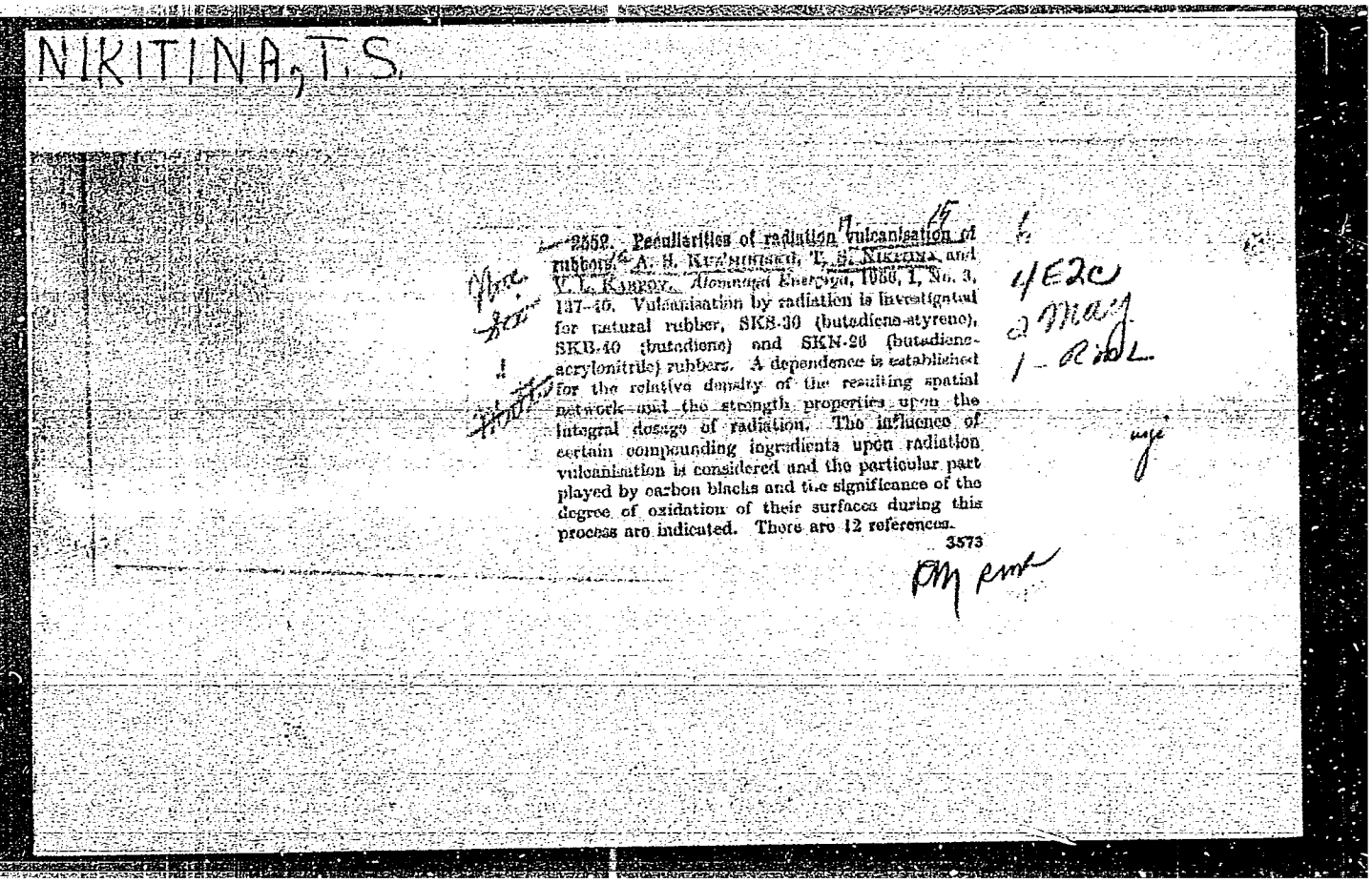
4

Distribution of absorbed energy in radiational polymerization. [illegible] and Kh. [illegible] Inst. Khim., Acad. Sci. Ukr. S.S.R., 1955, 185-90.—Kinetics of polymerization of CH_2:$CMeCO_2Me$, PhCH:CH_2, and CH_2:CHOAc either en masse or in solns. with EtOAc, C_6H_6, and CCl_4 were examd. under γ-radiation from Co^{60}. The rate of polymerization in PhCH:CH_2 or CH_2:$CMeCO_2Me$ systems in CCl_4 rises through a max. in respect to concn. of the soln.; such curves cannot be explained by primary radical formation from the initial components. Equations are derived for formation of primary radicals in 3-component mixts., by taking into account a redistribution of the absorbed radiant energy. The equation is well supported by the expt'l. data which are shown graphically. The yield of primary, initiating radicals per 100 e.v. of absorbed energy are: PhCH:CH_2 0.4, CH_2:$CMeCO_2Me$ 3.5, CH_2:CHOAc 5.0. The capture of radicals was attained in some of the runs by the use of diphenylpicrylhydrazyl.

G. M. Kosolapoff

(1)

pmv



NIKITINA, T. S.

2452. Peculiarities of radiation vulcanisation of rubbers. A. S. KUZ'MINSKII, T. S. NIKITINA, and V. L. KARPOV. *Atomnaya Energiya*, 1956, 1, No. 3, 137–45. Vulcanisation by radiation is investigated for natural rubber, SKS-30 (butadiene-styrene), SKB-40 (butadiene) and SKN-26 (butadiene-acrylonitrile) rubbers. A dependence is established for the relative density of the resulting spatial network and the strength properties upon the integral dosage of radiation. The influence of certain compounding ingredients upon radiation vulcanisation is considered and the particular part played by carbon blacks and the significance of the degree of oxidation of their surfaces during this process are indicated. There are 12 references.

3573

KUZ'MINSKIY, A.S.; NIKITINA, T.S.; TSETLIN, B.L.

Effect of ionizing radiation on rubbers and vulcanizates. Kauch. i rez. 16 no.6:12-18 Je '57. (MIRA 10:10)

1.Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti.
(Rubber) (Radiation) (Vulcanization)

NIKITINA, T.S.

JOURNAL OF PHYSICAL CHEMISTRY

Vol XXXI, Nr 3, March, 1957

THE ADDITION OF CARBON TETRACHLORIDE TO VINYL BUTYL ETHER UNDER THE ACTION OF γ-RADIATION

T. S. Nikitina and *Kh. S. Bagdasar'yan*

Summary

On the action of γ-radiation on mixtures of vinyl butyl ether and carbon tetrachloride an equimolar addition product is formed. The rate of reaction with respect to the composition of the reaction mixture passes through a maximum at a CCl_4 molar fraction of 0.05. The rate is proportional to the square root of the irradiation intensity. The radical yield per 100 eV (G) as determined by the DPPH method equals 13 for the vinyl butyl ether. A chain mechanism is proposed for the addition of CCl_4 to vinyl butyl ether based on the assumption that upon the action of the γ-radiation the reaction is initiated by both components of the mixture with a probability proportional to the G value of the given component, and that the rate of interaction of the radicals (chain breaking) does not depend upon the type of the radical.

Physico-Chem. Inst. im. L. Ya. Karpov

21(8) PHASE I BOOK EXPLOITATION SOV/2326

Bugayenko, L. T., T.S. Nikitina, A. N. Pravednikov, and Yu M. Malinskiy

Khimicheskoye deystviye ioniziruyushchikh izlucheniy (Chemical Action of Ionizing Radiation) Moscow, 1958. 84 p. (Series: Khimicheskaya promyshlennost') Errata slip inserted. 1,500 copies printed.

Sponsoring Agencies: USSR. Gosudarstvennyy nauchno-tekhnicheskiy komitet, and Akademiya nauk SSSR. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii. No contributors mentioned.

PURPOSE: The book is intended for chemists and chemical engineers.

COVERAGE: The book discusses the effect of ionizing radiation on various chemical processes. The effect of radiation on inorganic and organic compounds, on polymerization in the liquid, gaseous and solid phases, and on the properties of polymers is adequately covered. No personalities are mentioned. There are 495 references: 67 Soviet, 343 English, 16 German, 66 French, and 3 Italian.

Card 1/3

TABLE OF CONTENTS:

Chemical Action of Ionizing (Cont.) SOV/2326

AVAILABLE: Library of Congress

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Card 3/3

A. KUZMINSKIY T. S.

KUZMINSKIY, A. S., NIKITINA, T. S., ZHURAVSKAYA, E. V., OKSENT'YEVICH, L. A., SUNITSA, L. L., and VITUSHKIN, N. I.

"The Effect of Ionizing Radiations on Crude and Vulcanized Rubbers."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

NIKITINA, T. S., KUZ'MINSKIY, A. S., OKSENT'YEVICH, L. A. and KORPOV, V. L.

"Radiation Vulcanization of Rubber"

Truly Transactions of the First Conference on Radioaction Chemistry, Moscow,
Izd-vo AN SSSR, 1958. 330pp.
Conference -25-30 March 1957, Moscow

SOV/58-59-8-17760

Translated from: Referativnyy Zhurnal Fizika, 1959, Nr 8, p 112 (USSR)

AUTHORS: Nikitina, T.S., Kuz'minskiy, A.S., Karpov, V.L.

TITLE: The Radiation Vulcanization of Caoutchoucs

PERIODICAL: V sb.: Deystviye ioniziruyushchikh izlucheniy ne neorgan. i orgam. sistemy. Moscow, AN SSSR, 1958, pp 333-343

ABSTRACT: The article has not been reviewed.

Card 1/1

5(3), 21(8) PHASE I BOOK EXPLOITATION SOV/3439

Nikitina, T.S., Ye. V. Zhuravskaya, and A.S. Kuz'minskiy

Deystviye ioniziruyushchikh izlucheniy na polimery (Effect of Ionizing Radiations on Polymers) Moscow, Goskhimizdat, 1959. 101 p. (Series: Moscow. Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti) Errata slip inserted. 4,300 copies printed.

Sponsoring Agency: USSR Sovet Ministrov. Gosudarstvennyy komitet po khimii.

PURPOSE: This booklet is intended for scientific workers, engineers and technicians exploring the possibility of using ionizing radiation for changing properties of long-chain polymers.

COVERAGE: An attempt is made to sum up the information from Soviet and non-Soviet sources on the behavior of high polymers when exposed to high energy radiation. The authors review general principles of ionizing radiation and its effect on high polymers. The mechanism of processes induced by nuclear radiation in polymers is discussed along with changes in chemical, physical, mechanical, and electrical properties of polymers resulting from exposure of the latter to radiation. Formation of ionized molecules, excited molecules and free radicals obtained from the dissociation of ionized or excited molecules is discussed

Card 1/4

and results of the irradiation of such polymeric materials as plastics, natural and synthetic rubber and fiber are analyzed. The role of oxygen in the irradiation of polymers, the gas liberation and the dependence of change in molecular weight on the radiation dosage is explained. The study of experimental results reveals that the irradiation of polymer compounds produces substantial changes in all their properties. Basically, the irradiation of polymers results either in crosslinking or scission of their chains. Conditions under which radiation takes place, such as temperature, radiation dose, polymer phase, etc. are not considered. The appendix lists a number of irradiated polymers with changes in their properties induced by radiation. There are 206 references: 30 Soviet and 176 non-Soviet in English, German, French and Swedish.

TABLE OF CONTENTS:

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Effect of Ionizing Radiations (Cont.)

Card 3/4

4-26-60

5(4) SOV/63-4-3-23/31

AUTHORS: Lezhnev, N.N., Nikitina, T.S., Kuz'minskiy, A.S.

TITLE: On the Modification of the Surface of Carbon Blacks by the Action of Ionizing Radiation

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3, pp 407-408 (USSR)

ABSTRACT: The strengthening effect of carbon black is determined by the adsorption properties of its particles. The surface may be modified by radio-chemical addition of various compounds. The irradiation was carried out by a Co^{60} source of 22,000 g-equ. Phenyl-β-naphthylamine, mercaptobenzothiazol, sulfur and rubber of the type SKS-30A were physically adsorbed. The mechanical properties of the vulcanizates were studied on the Polani dynamometer. A considerable effect is obtained by irradiating carbon black with rubber chemically adsorbed on its surface.
There are 2 tables.

Card 1/2

On the Modification of the Surface of Carbon Blacks by the Action of Ionizing Radiation

ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovoy promyshlennosti (Scientific Research Institute of the Rubber Industry)

SOV/89-6-5-6/33

21(4)
AUTHORS: Galil-Ogly, F. A., Nikitina, T. S., Dyumayeva, T. N., Novikov, A. S., Kuz'minskiy, A. S.

TITLE: On the Radiation Vulcanization of Fluorine Copolymers (O radiatsionnoy vulkanizatsii ftorsopolimerov)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 5, pp 540-545 (USSR)

ABSTRACT: If rubber-like fluorine copolymers are irradiated, rubber having unsatisfactory physical and mechanical properties is obtained. If various additions are added to these substances before irradiation, rubber having valuable technical properties may be obtained. The rubber-like fluorine copolymer "Kel'-F" is experimentally used as elastomer. Irradiation was carried out with Co^{60}-disks (thickness 0.3 to 1.0 mm) with an activity of 1400 and 21000 gramequivalent Ra. The integral absorbed energy corresponded to 3 to 80.10^6 r. The structural change in the irradiated material was determined from the changed solubility, from the swelling limit in acetone, from the modulus E_∞, and from other physico-mechanical parameters. As additions the following substances are used: Channel black, white soot, furnace carbon black, thermal carbon

Card 1/3

Ca - ...e chloride.
- addition of oxygen. There
...ble, and 10 references, 2 of which are Soviet.

NESMEYANOV, A.N.; PEREVALOVA, E.G.; GOLOVNYA, R.V.; NIKITINA, T.V.; SIMUKOVA, N.A.

Disruption of the ferrocene nucleus by hydrogenation and treatment with halides. Izv.AN SSSR Otd.khim.nauk no.6:739-741 Je '56. (MLRA 9:9)

1.Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Iron dicyclopentadienyl)

89402

S/062/61/000/001/007/016
B101/B220

53700 2209, 1274, 1273

AUTHORS: Perevalova, E. G., Simukova, N. A., Nikitina, T. V., Reshetov, P. D., and Nesmeyanov, A. N.

TITLE: Interaction between ferrocene derivatives and aryl diazonia

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, no. 1, 1961, 77-83

TEXT: The authors have shown in Refs. 1-3 that ferrocene reacts with aryl diazonia to form aryl ferrocenes. The present paper deals with the arylation of p-tolyl, methyl, ethyl ferrocene, as well as acyl and carboxy ferrocenes. It was possible to arylate p-tolyl ferrocene by means of p-tolyl diazonium and this resulted in the formation of hetero-annular di-(p-tolyl) ferrocene:

$$C_5H_5FeC_5H_4C_6H_4CH_3\text{-}p \xrightarrow{p\text{-}CH_3C_6H_4N_2Cl} Fe(C_5H_4C_6H_4CH_3\text{-}p)_2$$

The yield amounted to only 9% of the theoretical one; this is attributed to the poor stability of the cation of this compound. Reaction between phenyl

Card 1/3

diazonium and methyl ferrocene resulted in a mixture of phenylated methyl ferrocenes from which it was possible to isolate the heteroannular methyl-phenyl ferrocene in a poor yield.

$C_5H_5FeC_5H_4CH_3 \xrightarrow{C_6H_5N_2X} CH_3C_5H_4FeC_5H_4C_6H_5$. The ethyl ferrocene reacted similarly (20% yield). Heteroannular dipropionyl, dibutyryl, and dibenzoyl ferrocene reacted with p-nitro-phenyl diazonium in the same way as observed in the case of diacetyl ferrocene. The bond between the iron and the cyclopentadienyl ring was split, and derivatives of 1,2,3-oxa-diazine were formed. Resinification took place in the reaction between p-nitro-phenyl diazonium and the dimethyl ester of ferrocene dicarboxylic acid. It was proved possible to isolate chromatographically a reduced amount of p-nitro-phenyl-dicarbomethoxy ferrocene, but the ferrocene ring was destructed at the same time (appearance of iron ions). Monosubstituted ferrocenes, such as acetyl ferrocene and carbomethoxy ferrocene, react with p-nitro-phenyl diazonium like ferrocene, but with a lower yield of arylation products. Monoacetyl ferrocene formed both homoannular and heteroannular p-nitro-phenyl acetoferrocene:

Interaction between ferrocene...

$$C_5H_5FeC_5H_4COCH_3 \xrightarrow{p\text{-}NO_2C_6H_4N_2Cl} CH_3COC_5H_4FeC_5H_4C_6H_4NO_2\text{-}p$$

+ $C_5H_5FeC_5H_3(COCH_3)C_6H_4NO_2$-p. The methyl ester of ferrocene carboxylic acid reacts to form heteroannular p-nitro-phenyl carbomethoxy ferrocene (yield 7%). The presence or absence of the non-substituted cyclopentadienyl ring was always established spectroscopically. The free mono- and dicarboxylic acids of ferrocene as well as their sodium salts together with p-nitro-phenyl diazonium gave mixtures from which the arylation products could not be isolated. L. V. Yershova and M. Kristynyuk assisted in the experiments. There are 14 Soviet-bloc references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: July 28, 1959

Card 3/3

NESMEYANOV, A.N., akademik; PEREVALOVA, E.G.; GUBIN, S.P.; NIKITINA, T.V.; PONOMARENKO, A.A.; SHILOVTSEVA, L.S.

Properties of phenylferrocene. Dokl. AN SSSR no.4:888-891 Ag '61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Ferrocene)

5 3700

25317

S/020/61/138/005/017/025
B103/B215

AUTHORS: Nesmeyanov, A. N., Academician, Perevalova, E. G., and Nikitina, T. V.

TITLE: Synthesis of azoferrocene, its reduction and behavior under the conditions of benzidine rearrangement

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961, 1118-1121

TEXT: The authors synthesized azoferrocene, examined its interaction with reagents transforming azobenzene into benzidine, and studied the behavior of azoferrocene under the conditions of the production of hydrazo compounds and their subsequent benzidine rearrangement. Azo derivatives of ferrocene were first synthesized by G. R. Knox (Ref. 11: Proc. Chem. Soc., 1959, 56) (methyl- and phenyl azoferrocene). The authors obtained azoferrocene by the action of N_2O upon ferrocenyl lithium (Ref. 12: Tetrahedron Letters, No. 1, 1 (1960)). A similar reaction was described for phenyl lithium (F. M. Beringer, J. A. Farr, S. Sands, Ref. 13: J. Am. Chem. Soc., 75, 3984 (195 R. Meier, W. Frank, Ref. 14: Ber., 89, 2747 (1956)). There is hardly any organic solvent with which azoferrocene would form

Card 1/6

benzidine-type compounds under the action of strong acids (conditions of benzidine formation from azobenzene). The action of concentrated HCl or H_2CO_4 partly causes its decomposition, and partly its transformation into ferrocenyl amine. The authors explain this peculiar behavior of azoferrocene which differs from that of azobenzene as follows: azoferrocene is protonized in the presence of a strong acid, and cation I forms whose positive charge is neutralized due to electrons supplied by the iron atom, and due to the formation of ion radical II. Ferroacenyl amine and fission products of the ferrocene ring were obtained from II by acid action:

$$C_5H_5FeC_5H_4N = NC_6H_4FeC_5H_5 \xrightarrow{H^+} [C_5H_5FeC_5H_4\overset{+}{N}(H) = NC_6H_4FeC_5H_5] \rightarrow$$

(I)

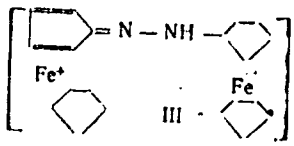
$$\rightarrow [C_5H_5\overset{+}{F}eC_5H_4\dot{N} - NHC_6H_4FeC_5H_5]\,\overset{-}{Cl} \xrightarrow{+HCl}$$

(II)

$$\rightarrow C_5H_5FeC_5H_4NH_2 + \overset{(II)}{F}eCl_2 + [C_6H_6 + C_6H_4NCl].$$

No. 1

The authors assume that the ion of II has a III structure:



No.2

(W. F. Little, A. K. Clark, Ref. 19: J. Org. Chem., 25, 1979 (1960)). Furthermore, the authors studied the reduction of azoferrocene under conditions under which hydrazo benzene is formed from azobenzene with almost quantitative yield, while almost no aniline is formed. Azoferrocene proved to react neither with lithium aluminum hydride, nor with phenyl magnesium bromide, nor with lithium in tetrahydrofuran medium. In alkaline medium it is reduced to ferrocenyl amine (yields: 20 %, and 76 %, respectively) by hydrazine hydrate and zinc. This behavior of azoferrocene is similar to that of benzene derivatives; azobenzenes with donor substituents cannot be reduced to hydrazo compounds as easily as azobenzene itself, whereas the corresponding hydrazo compound can more easily be reduced to amine. It is known that the donor properties of the ferrocenyl group are much stronger than those of the phenyl group. Hydrazo ferrocene probably formed as an intermediate in the reduction with

zinc dust. Stirring and heating of the reaction mixture makes the violet color of azoferrocene disappear gradually. However, it appears again as soon as stirring has stopped, and zinc has dropped to the bottom. This is repeated until the color disappeared irreversibly. The authors assume a further reduction of hydrazo ferrocene to amine, and also its disproportionation into azoferrocene and ferrocenyl amine. Without a reducing agent, only disproportionation takes place and causes a rapid increase in the azoferrocene concentration and violet coloring. If the reduction is interrupted at the first disappearance of the violet color, and if the reaction mixture is divided into two equal parts one of which is treated with diluted HCl whereas the other one is shaken in the air, a mixture of azoferrocene and ferrocenyl amine is formed in both cases. In the second case, however, the amount of azoferrocene is much higher than that of ferrocenyl amine. In the first case, the disproportionation of hydrazo ferrocene into amine and azo compound is much faster under the action of HCl. In the second half, the hydrazo ferrocene which so far has not been disproportionated, is oxidized into azoferrocene by atmospheric oxygen. Since no other amine besides ferrocenyl amine has been found, the authors conclude that a benzidine-type rearrangement does

Synthesis of azoferrocene, ... 25317

S/020/61/138/005/017/025
B104/B215

not take place. They ... the opinion that ferrocene derivatives do not undergo intramolecular rearrangement characteristic of the benzene series. An analogy of ferrocene and benzene proved successful in those cases where the general ability of electron supply of the system played the main part. Intramolecular rearrangement of benzene derivatives is usually characterized by a cyclic transition stage including quinoide-type structures. In the case of ferrocene derivatives, similar transition states cannot be of the same character. The specifity of electron interactions within the system is very distinct in such structures, and iron plays a decisive role in ferrocene derivatives. Furthermore, "fulvenoid" structures (see III in scheme no. 2) will correspond to the "quinoide" structure of the benzene series. A complete analogy in the conveyance of electron influences in these two structures is very unlikely. ? I. Gershzon is mentioned. There are 21 references: 7 Soviet-bloc and 14 non-Soviet-bloc. The four references to English-language publications are given in the body of the abstract.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

Card 5/6

25856
S/020/61/139/004/016/025
B 103/B206

5 3750

AUTHORS: Nesmeyanov, A. N., Academician, P[illegible]evalova, E. G., Gubin, S. P., Nikitina, T. V., Ponomarenko, A A., and Shilovtseva, L. S.

TITLE: Properties of phenyl ferrocene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, [illegible]. 4, 1961, 865-867

TEXT: The authors investigated: 1) the amino methylation, 2) sulfonation, 3) concurrent (with ferrocene) acetylation, and 4) nitration of phenyl ferrocene. They established that the alkyl group if linked with the ferrocene ring, facilitates the subsequent electrophilic substitution. In this case, the cyclopentadienyl ring to which the alkyl group is bonded, is more strongly activated. In relation to the ferrocenyl group, the phenyl group is an electron-acceptor group (A. N. Nesmeyanov et al., Ref. 5: DAN, 103, 81 (1955)). These data by the authors were confirmed by M. Rosenblum (J. Am. Chem. Soc., 81, 4530 (1959)). The electrophilic substitution of the hydrogen atoms in the ferrocene ring is deactivated by the phenyl group. 1) Amino methylation. To a mixture of 70 ml of glacial

Card 1/6

25856
S/020/61/139/004/016/029
B103/B206

Properties of phenyl ferrocene

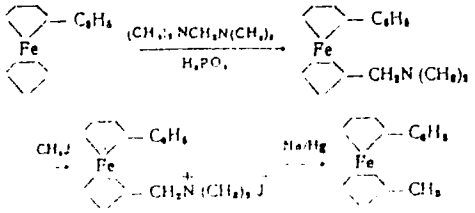
acetic acid and 4 g of H_3PO_4, cooled to 10°C, 2.25 g (0.019 mole) of tetramethyldiaminoethane is gradually added, and then 4 g (0.015 mole) of phenyl ferrocene. The reaction mass was stirred for 1 hr at room temperature and for 10 hr at 110 - 115°C in a nitrogen current and subsequently diluted with water to the double amount. The ferrocene (1.5 g) which had not entered into reaction was extracted with benzene. 40% NaOH solution was added to the acidic solution, and the formed (N, N-dimethylaminomethyl)-phenyl ferrocene was extracted with ether. After distilling off the ether, 2.6 g of the above-mentioned compound was obtained as a viscous, dark, reddish-brown oil. The yield amounted to 54% of the theoretical one (related to phenyl ferrocene) and to 86% of the phenyl ferrocene reacted. The final product was distilled in vacuo its boiling point was 150-160°C/3 mm Hg; n_D^{20} 1.6315. In the infrared spectrum of the final product, weak absorption bands existed in the range 1000 and 1100 cm^{-1}. From this, the authors assume the formation of a mixture from the hetero- and homoannular isomers. The latter seems to form in small quantities. The methiodide of the final product was produced by addition of CH_3I to

Card 2/6

25858
S/020/61/139/004/016/025
B103/B206

Properties of phenyl ferrocene

a solution of 3.2 g in absolute CH_3OH (or in benzene) with precipitation after 15 min by a great amount of anhydrous ether. An almost quantitative (4.3 g) amount of methiodide was produced. It is a yellow, crystalline substance with the decomposition point 70 - 71°C. Since in the infrared spectrum of the methiodide which was produced from the distilled final product, absorption at 1000 and 1100 cm^{-1} is missing, the authors conclude that the substituting groups are in various cyclopentadienyl rings. Through reduction of the methiodide by sodium amalgam, the heteroannular 1, 1-methyl-phenyl ferrocene was obtained (see reaction no. 1).



Card 3/6

Properties of phenyl ferrocene

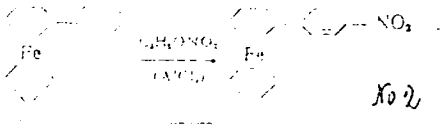
The yield was 1.8 g(71% of the theoretical one). Absorption at 1000 and 1100 cm^{-1} was missing in its infrared spectrum. A free cyclopentadienyl ring can only be proved spectroscopically in the substance which was isolated from the mother liquor. The authors came to the conclusion that the heteroannular isomer was the main component of the mixture produced by amino methylation. Therefore, this reaction mainly occurs in the free cyclopentadienyl ring. 2) To a solution of 10 g (0.038 mole) of phenyl ferrocene in 100 ml of dichloroethane, 10 g (0.060 mole) of freshly prepared dioxane sulfotrioxide was added while cooling with ice. Under the conditions of formation of ferrocene monosulfonic acid, 1', 1 phenyl ferrocene sulfonic acid was obtained.

$C_6H_5C_5H_4FeC_5H_5 \xrightarrow{SO_3\text{-dioxane}} C_6H_5C_5H_4FeC_5H_4SO_3H$. This acid was isolated as lead salt, which crystallizes with 4 water molecules. Absorption at 1000 and 1100 cm^{-1} was here also missing; the phenyl and sulfo groups are therefore in different cyclopentadienyl rings. The formation of heteroannular sulfonic acid is also proof of a lower reactivity of the ring

Card 4/6

Properties of phenyl ferrocene

linked with phenol. 3) The deactivating effect of the phenyl group on the ferrocenyl ring is specially marked during the Friedel-Crafts reaction. A solution of 1.4 ml of acetyl chloride and 2.66 g of $AlCl_3$ in 10 ml of absolute ether was added in the course of 20 min to a solution of ferrocene [illegible] and phenyl ferrocene (5.42 g) in 100 ml of CS_2. All components were used at a molar ratio of 1:1:1:1. The authors obtained acetyl ferrocene only with a yield of 25% of the theoretical one, and a mixture of acetyl phenyl ferrocenes of only 5%, 64% of phenyl ferrocene and 30% of ferrocene being recovered unchanged. From this, the authors conclude that ferrocene may be acetylated more easily than phenyl ferrocene. 4) Phenyl ferrocene was nitrated by means of ethyl nitrate in CS_2 in the presence of $AlCl_3$. The authors obtained a 13% yield (of the theoretical one) of p-nitro-phenyl ferrocene (see reaction no. 2).



Card 5/6

S/020/61/139/004/016/025
B103/B206

Properties of phenyl ferrocene

The main quantity of this [illegible] product is isolated together with part of the nonreacted phenyl ferrocene in nonoxidized state (and not as a cation). The authors presume that nitration does not take place with the phenyl ferrocene cation but with phenyl ferrocene. The continuance of the ferrocenyl ring under these conditions is noticeable, probably as a consequence of a reduced capability of being oxidized to a cation as compared with ferrocene. Ferrocene itself cannot be nitrated under these conditions. Attempts of the authors to nitrate ferrocene with various other reagents (e. g., nitronium borofluoride) also failed. Only oxidation of ferrocene to the cation which is inert in reactions of the electrophilic substitution, was brought about. There are 3 references: 2 Soviet-bloc and 3 non-Soviet-bloc. One reference to English-language publications is given in the body of the abstract, the another one reads: M. Rosenblum, R. B. Woodward, J. Am. Chem. Soc., [illegible]

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April [illegible]

Card 6/6

NESMEYANOV, A.N.; PEREVALOVA, E.G.; NIKITINA, I.V.; KUZNETSOVA, N.I.

Behavior of o- and p-ferrocenylphenylazobenzenes under conditions of benzidine rearrangement. Izv.AN SSSR.Ser.khim. no.12:2120-2124 '65.

Action of hydrochloric acid on azo derivatives of ferrocene. Izv.AN SSSR.Ser.khim. no.12:2124-2128 '65.

(MIRA 18:12)

1. Moskovskiy gosudarstvennyy universitet im. Lomonosova.
Submitted July 20, 1964.

NESMEYANOV, A.N.; NIKITINA, T.V.; PEREVALOVA, E.G.

Condensation of ferrocenylamine with nitrosobenzene. Izv.AN SSSR. Ser.khim. no.1:197-199 Ja '64. (MIRA 17:4)

1. Moskovskiy gosudarstvennyy universitet i Institut elementoorganicheskikh soyedineniy AN SSSR.

L 35318-66 EWT(m)/EWP(j) RM

ACC NR: AP6026891 SOURCE CODE: UR/0062/65/000/012/2120/2124

AUTHOR: Nesmeyanov, A. N.; Perevalova, E. G.; Nikitina, T. V.; Kuznetsova, N. I.

ORG: Moscow State University im. Lomonosov (Moskovskiy gosudarstvennyy [illegible])

TITLE: Behavior of m- and p- ferrocenylhydrazobenzenes under conditions of benzidine rearrangement

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1965, 2120-2124

TOPIC TAGS: benzidine, benzene, substituent, ferrocene, molecular structure, chemical reaction

ABSTRACT: This is a continuation of a previous investigation. The effect of ferrocenyl as a substituent on the benzidine rearrangement of hydrazobenzene was studied. It was established that ferrocenyl as a substituent on the benzene ring complicates benzidine rearrangement: m- and p-ferrocenylhydrazobenzenes under the conditions of benzidine rearrangement generally get disproportionated rather than rearranged, i.e. the end-product is ferrocenylamine and azoferrocene. Compounds of the benzidine type do not form. These findings indicate that the introduction of the ferrocenyl substituent -- whether in the para or in the meta position -- into the hydrazobenzene molecule impedes benzidine rearrangement to such an extent that disproportionation becomes the main trend of the reaction. [JPRS: 36,455]

SUB CODE: 07 / SUBM DATE: 29Jul63 / ORIG REF: 003 / OTH REF: 005

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0916 2649

L 35324-66 EWT(m)/EWP(j) RM

ACC NR: AP6026892 SOURCE CODE: UR/0062/65/000/012/2124/2128

AUTHOR: Nesmeyanov, A. N.; Perevalova, E. G.; Nikitina, T. V.; Kuznetsova, N. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Effect of hydrochloric acid on the azo derivatives of ferrocene

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1965, 2124-2128

TOPIC TAGS: hydrochloric acid, ferrocene, organic azo compound, chemical synthesis, nitrobenzene, chemical decomposition, condensation reaction, chemical reduction, amine

ABSTRACT: A study was made of the effect of conc. HCl on benzeneazoferrocene and m- and p-ferrocenylazobenzenes -- azo derivatives of ferrocene synthesized by condensation of nitrobenzene with ferrocenylamine and m- and p-ferrocenylanilines. It is shown that conc. HCl causes benzeneazoferrocene to decompose and form Fe-free substances; products of benzidine-type rearrangement have not been detected. Conc. HCl transforms m- and p-ferrocenylazobenzenes into ferrocenylaniline, aniline and substances isomeric to ferrocenylhydrazobenzene. In this case the ferrocenylazobenzenes are protonated and decompose, to form $FeCl_2$, which then reduces the second molecule of the protonated ferrocenylazobenzene to a hydrazo compound. The hydrazo compound is either further reduced to amines or gets disproportionated and rearranged.
[JPRS: 36,455]

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NIKITINA, V.A.

Substances binding bisulfites in the urine of mental patients.
Vop.psikh. i nevr. no.1:138-150 '57 (MIRA 11:8)

1. Iz Leningradskoy psikhonevrologicheskoy bol'nitsy im. I.M. Balinskogo.
(SULFITES)
(URINE--ANALYSIS AND PATHOLOGY)
(THIAMINE)

USSR / General Problems of Pathology. Immunity. U

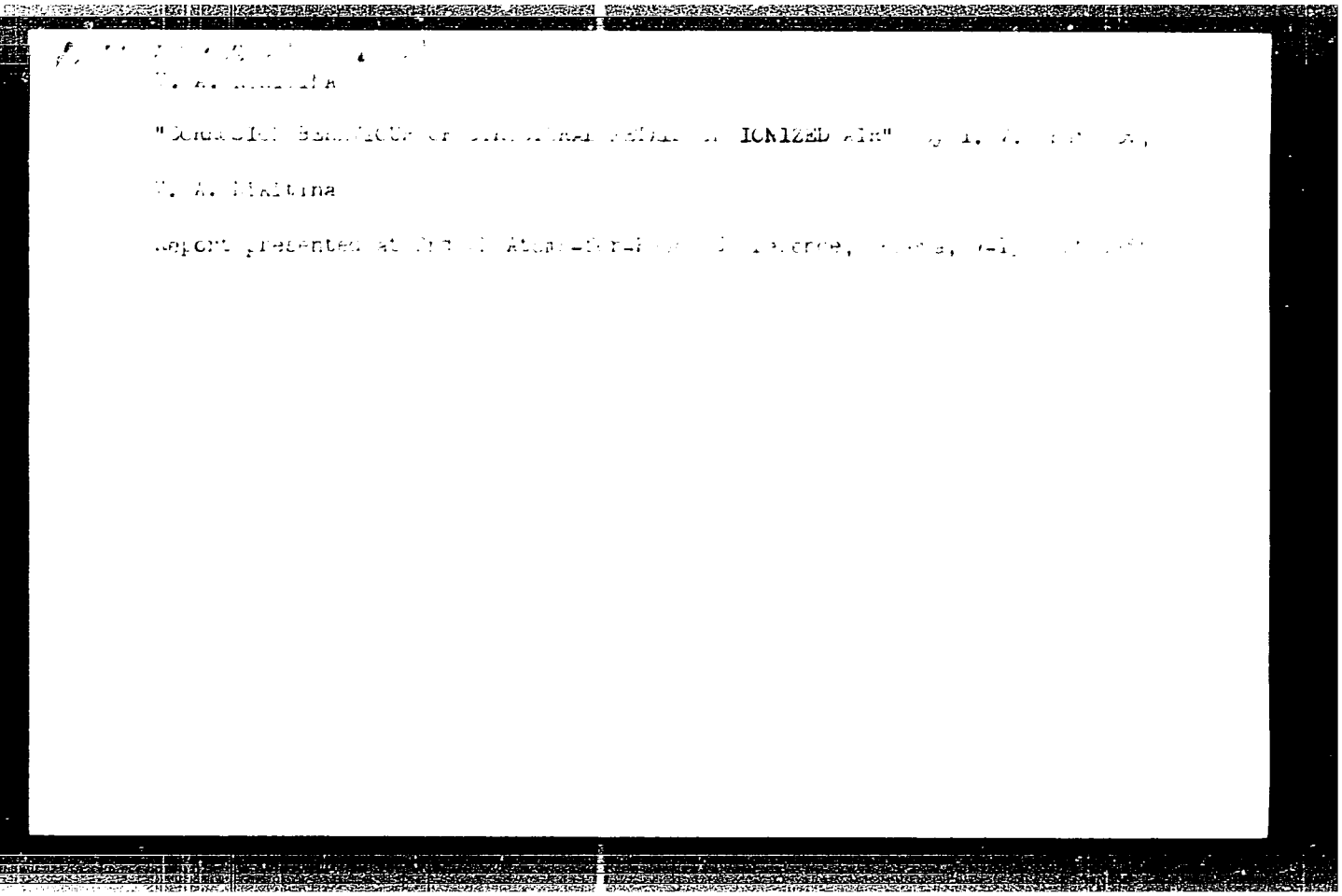
Abs Jour: Ref Zhur-Biol., No 11, 1958, 51485.

Author : Zotova, E. E., Nikitina, V. A., Sluchevskiy, I. F.
Inst : Not given.
Title : On the Problem of Immunity in Psychic Disorders.

Orig Pub: Sb. Psikhiatr. klinika i probl. patol, vyssh. nervn. deyat-sti, Vyp. 2, L., 1957, 220-235.

Abstract: The immunological reaction to typhoid vaccination was studied in 29 patients with schizophrenia, paraphrenia, cyclothymia etc. The original agglutinization (AT) titer in 21 patients was 1:50-1:200. The increase of AT as a result of vaccination was insignificant and reversible. (For inst.: AT prior to vaccination, 1:100, - after the third and fourth - 1:400, 1:50).

Card 1/1



NIKITINA, V.A.

21(4) PHASE I BOOK EXPLOITATION SOV/2714

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; yadernoye goryucheye i reaktornyye metally. (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow, Atomizdat, 1959. 670 p. (Series: Its: Trudy, vol. 3. 8,000 copies printed.

Ed. (Title page): A.A. Bochvar, Academician, A.P. Vinogradov, Academician, V.S. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zefirov, Doctor of Technical Sciences; Ed. (Inside book): V.V. Perevarnev and O.M. Pohelintseva; Tech. Ed.: E.I. Masel'.

PURPOSE: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy; for professors and students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

COVERAGE: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958. Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is devoted to geology, prospecting, concentration and processing of nuclear source material. The second part, edited by G.L. Zverev, includes 27 reports on metallurgy, metallography, processing technology of nuclear fuels and reactor metals, and neutron irradiation effects on metals. The titles of the individual papers in most cases correspond word for word with those in the official English language edition on the Conference proceedings. See SOV/2081 for the titles of the other volumes of the set.

Konobeyevskiy, S.T., K.P. Dubrovin, B.M. Levitskiy, L.D. Panteleyev, and N.F. Pravdyuk. Some Physico-chemical Processes occuring in Fissionable Materials Under Irradiation (Report No. 2192)

Pravdyuk, N.F., S.T. Konobeyevskiy, A.D. Amayev, and Yu.I. Pokrovskiy. The Effect of Neutron Irradiation on the Mechanical Properties of Structural Materials (Report No. 2052) 610

Sinel'nikov, K.D., V.Ye. Ivanov, and V.F. Zelenskiy. Magnesium-Beryllium Alloy as Structural Materials for Nuclear Reactors (Report No. 2153) 625

Shatalov, I.E., and V.A. Nikitina. Corrosion Behavior of Structural Metals in Ionized Air (Report No. 2042) 636

Lyashenko, V.S., V.V. Zotov, V.Ye. Andreyev, M.D. Abramovich, and V.A. Ivanov. Inquiry Into the Corrosion Resistance of Certain Materials in Sodium and Lithium (Report No. 2194) 642

Card 10/11

NIKITINA, V.A.

AID P - 3979

Subject : USSR/Engineering

Card 1/1 Pub. 78 - 24/27

Author : Pol'skiy, S.

Title : Olenev, N. M. Khraneniye nefti, nefteproduktov i gaza (Storage of oil, oil products and gas). Gostoptekhizdat, 1954 and Baysh, L. G. and V. A. Nikitina. Izmereniye raskhoda i urovniya zhidkostey i gazov v neftepererabotke (Measurements of the output and the level of liquids and gases in oil processing). Gostoptekhizdat, 1954. (Book reviews).

Periodical : Neft. khoz., v. 33, #12, 91, D 1955

Abstract : The author critically appraises these two textbooks published in 1954 by Gostoptekhizdat. He points out many mistakes, especially in the description of liquid and gas volume meters.

Institution : None

Submitted : No date